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SCIENCE FICTION

NOVEMBER 1954

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ASTEROID ROUNDUP
By Willy Ley

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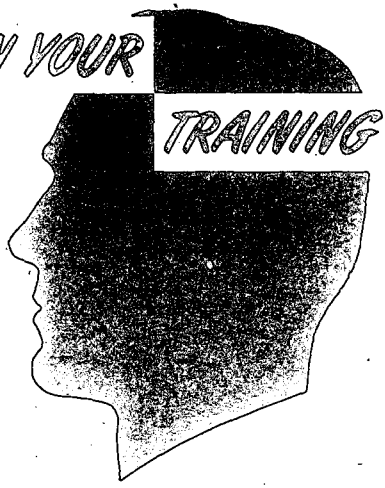

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NOVEMBER, 1954 VOL. 9, NO. 2

Galaxy
SCIENCE FICTION

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CONTENTS

		PAGE
NOVELETS		
HOW-2	by Clifford D. Simak	6
THE MUSIC MASTER OF BABYLON	by Edgar Pangborn	82
BIG ANCESTOR	by F. L. Wallace	134
SHORT STORIES		
THE NOSTALGIA GENE	by Roy Hutchins	45
THE LAXIAN KEY	by Robert Sheckley	59
UP FOR RENEWAL	by Lucius Daniel	111
THE AGE OF KINDNESS	by Arthur Sellings	124
SCIENCE DEPARTMENT		
FOR YOUR INFORMATION	by Willy Ley	70
FEATURES		
EDITOR'S PAGE	by H. L. Gold	4
FORECAST		116
GALAXY'S FIVE STAR SHELF	by Groff Conklin	119

Cover by EMSH Showing SPACE-TIME IN ONE TOUGH LESSON

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BETTER & BETTER?

ANCIENT Chinese potters knew something we have to go on rediscovering . . . whenever they created a particularly lovely piece of porcelain, they warily made sure to use crackle glaze, a glaze that would develop a webwork of fine little cracks when fired. There was a superstitious reason:

The gods are jealous of human perfection and ruthlessly punish its perpetrators.

We don't share the same gods and we reject such primitive reasoning—and yet we constantly learn that perfection can be costly and even deadly.

For about fifty years, ever since the invention of the automobile, highway engineers have been busily taking the kinks out of our roads, blasting away hills, eliminating curves, filling here and scraping there . . . making "as the crow flies" a wildly outdated idea of perfection. It would take a crow with theodolite eyes and jet propulsion to fly as straight as our roads run.

Now, however, the engineers are just as busily putting back the kinks they removed. Too many cars were piling up. Drivers, hypnotized by the unswervingly straight highways, reacted dazedly when danger suddenly appeared, so that one would smash into another until as many as a dozen cars have been wrecked in a single hideous multiple collision.

The roads were too perfect. Obstacles had to be replaced to keep drivers alert, watchful — or at least awake.

The cars themselves seem to be tending in the same fatal direction. What with no-shift drive, power steering, blowout-proof tires . . . more and more, better and better safety devices . . . drivers are suicidally relying on gadgetry instead of their own skill.

If the trend goes far enough, automotive engineers have one of two choices:

—Make traffic control entirely automatic, taking it out of the hands of drivers.

—Backtrack hastily by making cars less perfect.

The same difficulty faces sewage experts as a result of the discovery of detergents, which are the first really big improvement in soapmaking since antiquity.

Detergents break down grease as no soap has ever been able to do. But consumer demand has forced manufacturers to add sudsing action—people just couldn't believe their dishes and clothes were getting clean unless they could see what was going on—

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despite the fact that sudsing action actually cuts down the efficiency of detergents.

If that were all there was to the situation, there would be no headache for sewage men. But the devilish head of perfection rears up again:

Grease breaks down suds; detergents break down grease; so the suds in detergents are all but indestructible!

To combat the mountains of foam that pile out of the sewer mains, crews with high-power hoses blast and blast until—

Well, you've undoubtedly had to get these suds down sink drains. You know how infuriatingly they refuse to collapse and wash down. Multiply your annoyance by the number of homes and factories in your community and you have an idea, though only a vicarious one, of the daily frustrations of the hose crews.

Manufacturers and sewage experts ar laboring hard to educate the public away from sudsing detergents. The prospect doesn't look hopeful. But the problem is growing so vast that something must give—the public or the sewage systems.

I doubt if restoring imperfection is the answer in this case. For one thing, competition probably would make it impossible. For another, a detergent that cuts grease creates unbreakable suds; if it doesn't, it's not a detergent.

There are many more examples of the price of scientific perfection, but those are a representative offering. There are a couple no less harrowing in the control of nature:

When rats in the West Indies became a plague, mongooses were imported from India to exterminate them. The mongooses got rid of the rats — and then the snakes, small field animals, birds and anything else they could live on. Now the question is how to get rid of the mongooses.

Out West, some 30 years ago, 10,000 deer were saved from the attacks of predators; posses left not a cougar or coyote to prey on the deer. Within 15 years, the herds had increased to 100,000 . . . and they ate themselves into starvation.

There are now less than the original 10,000 deer and they have to be given winter handouts of hay because their grazing lands never recovered.

As you see, perfection can be achieved, but it's nothing to undertake lightly. Consider the plight of the man who committed the perfect murder. His conscience goaded him into confessing, but the crime had been so perfect that he couldn't get himself arrested!

—H. L. GOLD

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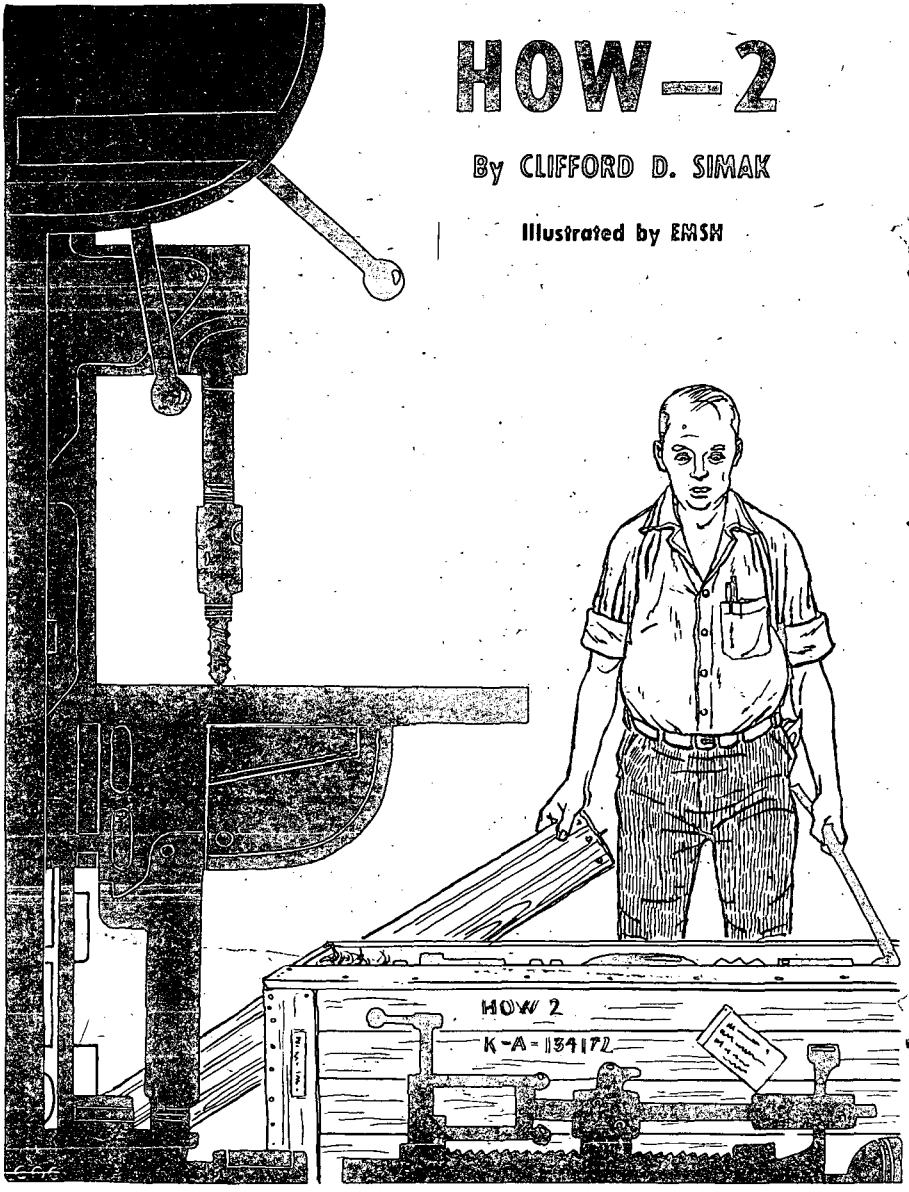
HOW—2

By CLIFFORD D. SIMAK

Illustrated by EMSH



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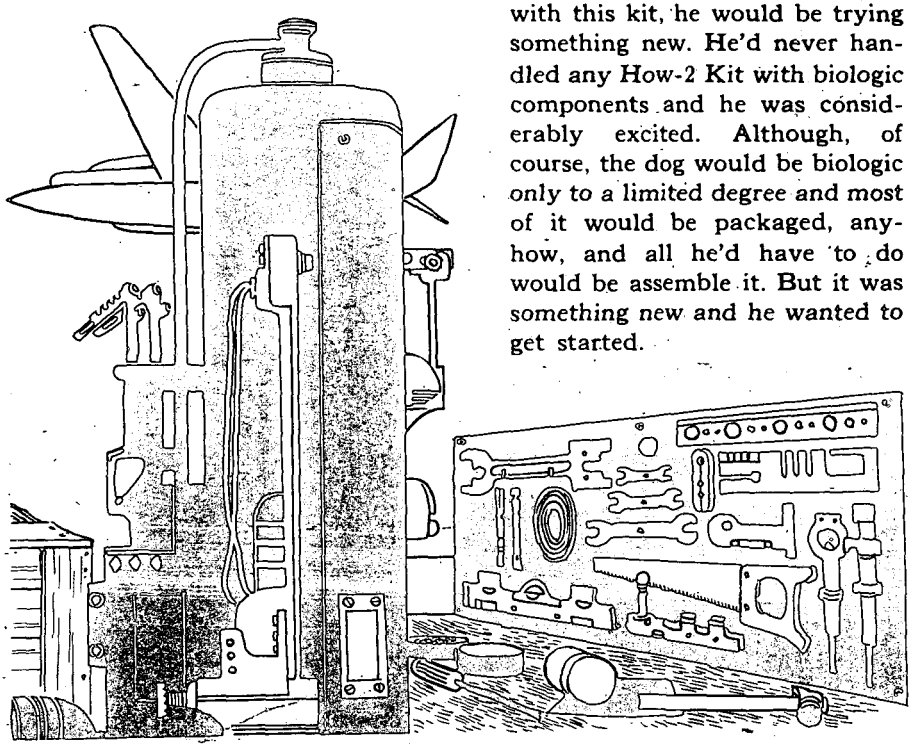
Are you lonesome? Bored? Then do as Knight did—acquire a hobby of some kind—but make sure that your hobby does not acquire you!

GORDON Knight was anxious for the five-hour day to end so he could rush home. For this was the day he should receive the How-2 Kit he'd ordered and he was anxious to get to work on it.

It wasn't only that he had always wanted a dog, although that was more than half of it—but, with this kit, he would be trying something new. He'd never handled any How-2 Kit with biologic components and he was considerably excited. Although, of course, the dog would be biologic only to a limited degree and most of it would be packaged, anyhow, and all he'd have to do would be assemble it. But it was something new and he wanted to get started.



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He was thinking of the dog so hard that he was mildly irritated when Randall Stewart, returning from one of his numerous trips to the water fountain, stopped at his desk to give him a progress report on home dentistry.

"It's easy," Stewart told him. "Nothing to it if you follow the instructions. Here, look — I did this one last night."

He then squatted down beside Knight's desk and opened his mouth, proudly pulling it out of shape with his fingers so Knight could see.

"Thish un ere," said Stewart, blindly attempting to point, with a wildly waggling finger, at the tooth in question.

He let his face snap back together.

"Filled it myself," he announced complacently. "Rigged up a series of mirrors to see what I was doing. They came right in the kit, so all I had to do was follow the instructions."

HE reached a finger deep inside his mouth and probed tenderly at his handiwork. "A little awkward, working on yourself. On someone else, of course, there'd be nothing to it."

He waited hopefully.

"Must be interesting," said Knight.

"Economical, too. No use paying the dentists the prices they ask. Figure I'll practice on myself and then take on the family. Some of my friends, even, if they want me to."

He regarded Knight intently.

Knight failed to rise to the dangling bait.

Stewart gave up. "I'm going to try cleaning next. You got to dig down beneath the gums and break loose the tartar. There's a kind of hook you do it with. No reason a man shouldn't take care of his own teeth instead of paying dentists."

"It doesn't sound too hard," Knight admitted.

"It's a cinch," said Stewart. "But you got to follow the instructions. There's nothing you can't do if you follow the instructions."

And that was true, Knight thought. You could do anything if you followed the instructions—if you didn't rush ahead, but sat down and took your time and studied it all out.

Hadn't he built his house in his spare time, and all the furniture for it, and the gadgets, too? Just in his spare time—although God knew, he thought, a man had little enough of that, working fifteen hours a week.

It was a lucky thing he'd been able to build the house after buying all that land. But everyone had been buying what they called estates, and Grace had set her

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heart on it, and there'd been nothing he could do.

If he'd had to pay carpenters and masons and plumbers, he would never have been able to afford the house. But by building it himself, he had paid for it as he went along. It had taken ten years, of course, but think of all the fun he'd had!

He sat there and thought of all the fun he'd had, and of all the pride. No, sir, he told himself, no one in his circumstances had a better house.

Although, come to think of it, what he'd done had not been too unusual. Most of the men he knew had built their homes, too, or had built additions to them, or had remodeled them.

He had often thought that he would like to start over again and build another house, just for the fun of it. But that would be foolish, for he already had a house and there would be no sale for another one, even if he built it. Who would want to buy a house when it was so much fun to build one?

And there was still a lot of work to do on the house he had. New rooms to add—not necessary, of course, but handy. And the roof to fix. And a summer house to build. And there were always the grounds. At one time he had thought he would landscape—a man could do a lot to beautify a place with a few years of spare-time work. But there had been so many other things to do, he had never managed to get around to it.

KNIGHT and Anson Lee, his neighbor, had often talked about what could be done to their adjoining acreages if they ever had the time. But Lee, of course, would never get around to anything. He was a lawyer, although he never seemed to work at it too hard. He had a large study filled with stacks of law books and there were times when he would talk quite expansively about his law library, but he never seemed to use the books. Usually he talked that way when he had half a load on, which was fairly often, since he claimed to do a lot of thinking and it was his firm belief that a bottle helped him think.

After Stewart finally went back to his desk, there still remained more than an hour before the working day officially ended. Knight sneaked the current issue of a How-2 magazine out of his briefcase and began to leaf through it, keeping a wary eye out so he could hide it quickly if anyone should notice he was loafing.

He had read the articles earlier, so now he looked at the ads. It was a pity, he thought, a man

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didn't have the time to do all there was to do.

For example:

Fit your own glasses (testing material and lens-grinding equipment included in the kit).

Take out your own tonsils (complete directions and all necessary instruments).

Fit up an unused room as your private hospital (no sense in leaving home when you're ill, just at the time when you most need its comfort and security).

Grow your own medicines and drugs (starts of 50 different herbs and medicinal plants, with detailed instructions for their cultivation and processing).

Grow your wife's fur coat (a pair of mink, one ton of horse meat, furrier tools).

Tailor your own suits and coats (50 yards of wool yardgoods and lining material).

Build your own TV set.

Bind your own books.

Build your own power plant (let the wind work for you).

Build your own robot (a jack of all trades, intelligent, obedient, no time off, no overtime, on the job 24 hours a day, never tired, no need for rest or sleep, do any work you wish).

Now there, thought Knight, was something a man should try. If a man had one of those robots, it would save a lot of labor. There were all sorts of attachments you could get for it. And the robots, the ad said, could put on and take off all these attachments just as a man puts on a pair of gloves or takes off a pair of shoes.

HAVE one of those robots and, every morning, it would sally out into the garden and pick all the corn and beans and peas and tomatoes and other vegetables ready to be picked and leave them all neatly in a row on the back stoop of the house. Probably would get a lot more out of a garden that way, too, for the grading mechanism would never select a too-green tomato nor allow an ear of corn to go beyond its prime.

There were cleaning attachments for the house and snow-plowing attachments and housepainting attachments and almost any other kind one could wish. Get a full quota of attachments, then lay out a work program and turn the robot loose—you could forget about the place the year around, for the robot would take care of everything.

There was only one hitch. The cost of a robot kit came close to ten thousand dollars and all the available attachments could run to another ten.

Knight closed the magazine and put it into the briefcase.

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He saw there were only fifteen minutes left until quitting time and that was too short a time to do anything, so Knight just sat and thought about getting home and finding the kit there waiting for him.

He had always wanted a dog, but Grace would never let him have one. They were dirty, she said, and tracked up the carpeting, they had fleas and shed hair all over everything—and, besides, they smelled.

Well, she wouldn't object to this kind of dog, Knight told himself.

It wouldn't smell and it was guaranteed not to shed hair and it would never harbor fleas, for a flea would starve on a half-mechanical, half-biologic dog.

He hoped the dog wouldn't be a disappointment, but he'd carefully gone over the literature describing it and he was sure it wouldn't. It would go for a walk with its owner and would chase sticks and smaller animals, and what more could one expect of any dog? To insure realism, it saluted trees and fence-posts, but was guaranteed to leave no stains or spots.

The kit was tilted up beside the hangar door when he got home, but at first he didn't see it. When he did, he craned his neck out so far to be sure it was the kit that he almost came a cropper in the hedge. But, with a bit of luck, he brought the flier down neatly on the gravel strip and was out of it before the blades had stopped whirling.

It was the kit, all right. The invoice envelope was tacked on top of the crate. But the kit was bigger and heavier than he'd expected and he wondered if they might not have accidentally sent him a bigger dog than the one he'd ordered.

He tried to lift the crate, but it was too heavy, so he went around to the back of the house to bring a dolly from the basement.

Around the corner of the house, he stopped a moment and looked out across his land. A man could do a lot with it, he thought, if he just had the time and the money to buy the equipment. He could turn the acreage into one vast garden. Ought to have a landscape architect work out a plan for it, of course—although, if he bought some landscaping books and spent some evenings at them, he might be able to figure things out for himself.

THERE was a lake at the north end of the property and the whole landscape, it seemed to him, should focus upon the lake. It was rather a dank bit of scenery at the moment, with straggly marsh surrounding it and unkempt cattails and reeds astir in

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the summer wind. But with a little drainage and some planting, a system of walks and a picturesque bridge or two, it would be a thing of beauty.

He started out across the lake to where the house of Anson Lee sat upon a hill. As soon as he got the dog assembled, he would walk it over to Lee's place, for Lee would be pleased to be visited by a dog. There had been times, Knight felt, when Lee had not been entirely sympathetic with some of the things he'd done. Like that business of helping Grace build the kilns and the few times they'd managed to lure Lee out on a hunt for the proper kinds of clay.

"What do you want to make dishes for?" he had asked. "Why go to all the trouble? You can buy all you want for a tenth of the cost of making them."

Lee had not been visibly impressed when Grace explained that they weren't dishes. They were ceramics, Grace had said, and a recognized form of art. She got so interested and made so much of it—some of it really good—that Knight had found it necessary to drop his model railroading project and tack another addition on the already sprawling house, for stacking, drying and exhibition.

Lee hadn't said a word, a year or two later, when Knight built the studio for Grace, who had grown tired of pottery and had turned to painting. Knight felt, though, that Lee had kept silent only because he was convinced of the futility of further argument.

But Lee would approve of the dog. He was that kind of fellow, a man Knight was proud to call a friend—yet queerly out of step. With everyone else absorbed in things to do, Lee took it easy with his pipe and books, though not the ones on law.

Even the kids had their interests now, learning while they played.

Mary, before she got married, had been interested in growing things. The greenhouse stood just down the slope, and Knight regretted that he had not been able to continue with her work. Only a few months before, he had dismantled her hydroponic tanks, a symbolic admission that a man could only do so much.

John, quite naturally, had turned to rockets. For years, he and his pals had shot up the neighborhood with their experimental models. The last and largest one, still uncompleted, towered back of the house. Someday, Knight told himself, he'd have to go out and finish what the youngster had started. In university now, John still retained his interests, which now seemed to be branching out. Quite a boy,

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Knight thought pridefully. Yes, sir, quite a boy.

He went down the ramp into the basement to get the dolly and stood there a moment, as he always did, just to look at the place—for here, he thought, was the real core of his life. There, in that corner, the workshop. Over there, the model railroad layout on which he still worked occasionally. Behind it, his photographic lab. He remembered that the basement hadn't been quite big enough to install the lab and he'd had to knock out a section of the wall and build an addition. That, he recalled, had turned out to be a bigger job than he had bargained for.

HE got the dolly and went out to the hangar and loaded on the kit and wrestled it into the basement. Then he took a pinch-bar and started to uncrate it. He worked with knowledge and precision, for he had unpacked many kits and knew just how to go about it.

He felt a vague apprehension when he lifted out the parts. They were neither the size nor the shape he had expected them to be.

Breathing a little heavily from exertion and excitement, he went at the job of unwrapping them. By the second piece, he knew he had no dog. By the fifth, he knew beyond any doubt exactly what he did have.

He had a robot—and if he was any judge, one of the best and most expensive models!

He sat down on one corner of the crate and took out a handkerchief and mopped his forehead. Finally, he tore the invoice letter off the crate, where it had been tacked.

To Mr. Gordon Knight, it said, *one dog kit, paid in full.*

So far as How-2 Kits, Inc., was concerned, he had a dog. And the dog was paid for—paid in full, it said.

He sat down on the crate again and looked at the robot parts.

No one would ever guess. Come inventory time, How-2 Kits would be long one dog and short one robot, but with carloads of dog kit orders filled and thousands of robots sold, it would be impossible to check.

Gordon Knight had never, in all his life, done a consciously dishonest thing. But now he made a dishonest decision and he knew it was dishonest and there was nothing to be said in defense of it. Perhaps the worst of all was that he was dishonest with himself.

At first, he told himself that he would send the robot back, but—since he had always wanted to put a robot together—he would assemble this one and then

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take it apart, repack it and send it back to the company. He wouldn't activate it. He would just assemble it.

But all the time he knew that he was lying to himself, realized that the least he was doing was advancing, step by evasive step, toward dishonesty. And he knew he was doing it this way because he didn't have the nerve to be forthrightly crooked.

So he sat down that night and read the instructions carefully, identifying each of the parts and their several features as he went along. For this was the way you went at a How-2. You didn't rush ahead. You took it slowly, point by point, got the picture firmly in your mind before you started to put the parts together. Knight, by now, was an expert at not rushing ahead. Besides, he didn't know when he would ever get another chance at a robot.

II

IT was the beginning of his four days off and he buckled down to the task and put his heart into it. He had some trouble with the biologic concepts and had to look up a text on organic chemistry and try to trace some of the processes. He found the going tough. It had been a long time since he had paid any attention to organic chemistry, and he found that he had forgotten the little he had known.

By bedtime of the second day, he had fumbled enough information out of the textbook to understand what was necessary to put the robot together.

He was a little upset when Grace, discovering what he was working on, immediately thought up household tasks for the robot. But he put her off as best he could and, the next day, he went at the job of assembly.

He got the robot together without the slightest trouble, being fairly handy with tools—but mostly because he religiously followed the first axiom of How-2-ism by knowing what he was about before he began.

At first, he kept assuring himself that as soon as he had the robot together, he would disassemble it. But when he was finished, he just had to see it work. No sense putting in all that time and not knowing if he had gotten it right, he argued. So he flipped the activating switch and screwed in the final plate.

The robot came alive and looked at Knight.

Then it said, "I am a robot. My name is Albert. What is there to do?"

"Now take it easy, Albert," Knight said hastily. "Sit down and rest while we have a talk."

"I don't need to rest," it said.

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"All right, then, just take it easy. I can't keep you, of course. But as long as you're activated, I'd like to see what you can do. There's the house to take care of, and the garden and the lawn to mind, and I'd been thinking about the landscaping . . ."

He stopped then and smote his forehead with an open palm. "*Attachments!* How can I get hold of the attachments?"

"Never mind," said Albert. "Don't get upset. Just tell me what's to be done."

So Knight told him, leaving the landscaping till the last and being a bit apologetic about it.

"A hundred acres is a lot of land and you can't spend all your time on it. Grace wants some housework done, and there's the garden and the lawn."

"Tell you what you do," said Albert. "I'll write a list of things for you to order and you leave it all to me. You have a well-equipped workshop. I'll get along."

"You mean you'll build your own attachments?"

"Quit worrying," Albert told him. "Where's a pencil and some paper?"

KNIGHT got them for him and Albert wrote down a list of materials—steel in several dimensions and specifications, aluminum of various gauges, copper wire and a lot of other items.

"There!" said Albert, handing him the paper. "That won't set you back more than a thousand and it'll put us in business. You better call in the order so we can get started."

Knight called in the order and Albert began nosing around the place and quickly collected a pile of junk that had been left lying around.

"All good stuff," he said.

Albert picked out some steel scrap and started up the forge and went to work. Knight watched him for a while, then went up to dinner.

"Albert is a wonder," he told Grace. "He's making his own attachments."

"Did you tell him about the jobs I want done?"

"Sure. But first he's got to get the attachments made."

"I want him to keep the place clean," said Grace, "and there are new drapes to be made, and the kitchen to be painted, and all those leaky faucets you never had the time to fix."

"Yes, dear."

"And I wonder if he could learn to cook."

"I didn't ask him, but I suppose he could."

"He's going to be a tremendous help to me," said Grace. "Just think, I can spend all my time at painting!"

Through long practice, he knew

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exactly how to handle this phase of the conversation. He simply detached himself, split himself in two. One part sat and listened and, at intervals, made appropriate responses, while the other part went on thinking about more important matters.

Several times, after they had gone to bed, he woke in the night and heard Albert banging away in the basement workshop and was a little surprised until he remembered that a robot worked around the clock, all day, every day. Knight lay there and stared up at the blackness of the ceiling and congratulated himself on having a robot. Just temporarily, to be sure—he would send Albert back in a day or so. There was nothing wrong in enjoying the thing for a little while, was there?

THE next day, Knight went into the basement to see if Albert needed help, but the robot affably said he didn't. Knight stood around for a while and then left Albert to himself and tried to get interested in a model locomotive he had started a year or two before, but had laid aside to do something else. Somehow, he couldn't work up much enthusiasm over it any more, and he sat there, rather ill at ease, and wondered what was the matter with him. Maybe he needed a new interest. He had often thought he would like to take up puppetry and now might be the time to do it.

He got out some catalogues and How-2 magazines and leafed through them, but was able to arouse only mild and transitory interest in archery, mountain-climbing and boat-building. The rest left him cold. It seemed he was singularly uninspired this particular day.

So he went over to see Anson Lee.

He found Lee stretched out in a hammock, smoking a pipe and reading Proust, with a jug set beneath the hammock within easy reaching distance.

Lee laid aside the book and pointed to another hammock slung a few feet from where he lay. "Climb aboard and let's have a restful visit."

Knight hoisted himself into the hammock, feeling rather silly.

"Look at that sky," Lee said. "Did you ever see another so blue?"

"I wouldn't know," Knight told him. "I'm not an expert on meteorology."

"Pity," Lee said. "You're not an expert on birds, either."

"For a time, I was a member of a bird-watching club."

"And worked at it so hard, you got tired and quit before the year was out. It wasn't a bird-watching club you belonged to—it was

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an endurance race. Everyone tried to see more birds than anyone else. You made a contest of it. And you took notes, I bet."

"Sure we did. What's wrong with that?"

"Not a thing," said Lee, "if you hadn't been quite so grim about it."

"Grim? How would you know?"

"It's the way you live. It's the way everyone lives now. Except me, of course. Look at that robin, that ragged-looking one in the apple tree. He's a friend of mine. We've been acquainted for all of six years now. I could write a book about that bird—and if he could read, he'd approve of it. But I won't, of course. If I wrote the book, I couldn't watch the robin."

"You could write it in the winter, when the robin's gone."

"In wintertime," said Lee, "I have other things to do."

HE reached down, picked up the jug and passed it across to Knight.

"Hard cider," he explained. "Make it myself. Not as a project, not as a hobby, but because I happen to like cider and no one knows any longer how to really make it. Got to have a few worms in the apples to give it a proper tang."

Thinking about the worms, Knight spat out a mouthful, then handed back the jug. Lee applied himself to it wholeheartedly.

"First honest work I've done in years." He lay in the hammock, swinging gently, with the jug cradled on his chest. "Every time I get a yen to work, I look across the lake at you and decide against it. How many rooms have you added to that house since you got it built?"

"Eight," Knight told him proudly.

"My God! Think of it—eight rooms!"

"It isn't hard," protested Knight, "once you get the knack of it. Actually, it's fun."

"A couple of hundred years ago, men didn't add eight rooms to their homes. And they didn't build their own houses to start with. And they didn't go in for a dozen different hobbies. They didn't have the time."

"It's easy now. You just buy a How-2 Kit."

"So easy to kid yourself," said Lee. "So easy to make it seem that you are doing something worthwhile when you're just piddling around. Why do you think this How-2 thing boomed into big business? Because there was a need of it?"

"It was cheaper. Why pay to have a thing done when you can do it yourself?"

"Maybe that *is* part of it. May-

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be, at first, that was the reason. But you can't use the economy argument to justify adding eight rooms. No one needs eight extra rooms. I doubt if, even at first, economy was the entire answer. People had more time than they knew what to do with, so they turned to hobbies. And today they do it not because they need all the things they make, but because the making of them fills an emptiness born of shorter working hours, of giving people leisure they don't know how to use. Now, me," he said. "I know how to use it."

He lifted the jug and had another snort and offered it to Knight again. This time, Knight refused.

They lay there in their hammocks, looking at blue sky and watching the ragged robin. Knight said there was a How-2 Kit for city people to make robot birds and Lee laughed pityingly and Knight shut up in embarrassment.

WHEN Knight went back home, a robot was clipping the grass around the picket fence. He had four arms, which had clippers attached instead of hands, and he was doing a quick and efficient job.

"You aren't Albert, are you?" Knight asked, trying to figure out how a strange robot could have strayed onto the place.

"No," the robot said, keeping right on clipping. "I am Abe. I was made by Albert."

"*Made?*"

"Albert fabricated me so that I could work. You didn't think Albert would do work like this himself, did you?"

"I wouldn't know," said Knight.

"If you want to talk, you'll have to move along with me. I have to keep on working."

"Where is Albert now?"

"Down in the basement, fabricating Alfred."

"Alfred? *Another* robot?"

"Certainly. That's what Albert's for."

Knight reached out for a fence-post and leaned weakly against it.

First there was a single robot and now there were two, and Albert was down in the basement working on a third. That, he realized, had been why Albert wanted him to place the order for the steel and other things—but the order hadn't arrived as yet, so he must have made this robot — this Abe — out of the scrap he had salvaged!

Knight hurried down into the basement and there was Albert, working at the forge. He had another robot partially assembled and he had parts scattered here and there.

The corner of the basement

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looked like a metallic nightmare.

"Albert!"

Albert turned around.

"What's going on here?"

"I'm reproducing," Albert told him blandly.

"But . . ."

"They built the mother-urge in me. I don't know why they called me Albert. I should have a female name."

"But you shouldn't be able to make other robots!"

"Look, stop your worrying. You want robots, don't you?"

"Well—yes, I guess so."

"Then I'll make them. I'll make you all you need."

He went back to his work.

A ROBOT who made other robots—there was a fortune in a thing like that! The robots sold at a cool ten thousand and Albert had made one and was working on another. Twenty thousand, Knight told himself.

Perhaps Albert could make more than two a day. He had been working from scrap metal and maybe, when the new material arrived, he could step up production.

But even so, at only two a day —that would be half a million dollars' worth of robots every month! Six million a year!

It didn't add up, Knight sweatily realized. One robot was not supposed to be able to make another robot. And if there were such a robot, How-2 Kits would not let it loose.

Yet, here Knight was, with a robot he didn't even own, turning out other robots at a dizzy pace.

He wondered if a man needed a license of some sort to manufacture robots. It was something he'd never had occasion to wonder about before, or to ask about, but it seemed reasonable. After all, a robot was not mere machinery, but a piece of pseudo-life. He suspected there might be rules and regulations and such matters as government inspection and he wondered, rather vaguely, just how many laws he might be violating.

He looked at Albert, who was still busy, and he was fairly certain Albert would not understand his viewpoint.

So he made his way upstairs and went to the recreation room, which he had built as an addition several years before and almost never used, although it was fully equipped with How-2 ping-pong and billiard tables. In the unused recreation room was an unused bar. He found a bottle of whiskey. After the fifth or sixth drink, the outlook was much brighter.

He got paper and pencil and tried to work out the economics of it. No matter how he figured it, he was getting rich much fast-

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er than anyone ever had before.

Although, he realized, he might run into difficulties, for he would be selling robots without apparent means of manufacturing them and there was that matter of a license, if he needed one, and probably a lot of other things he didn't even know about.

But no matter how much trouble he might encounter, he couldn't very well be despondent, not face to face with the fact that, within a year, he'd be a multi-millionaire. So he applied himself enthusiastically to the bottle and got drunk for the first time in almost twenty years.

III

WHEN he came home from work the next day, he found the lawn razored to a neatness it had never known before. The flower beds were weeded and the garden had been cultivated. The picket fence was newly painted. Two robots, equipped with telescopic extension legs in lieu of ladders, were painting the house.

Inside, the house was spotless and he could hear Grace singing happily in the studio. In the sewing room, a robot — with a sewing-machine attachment sprouting from its chest—was engaged in making drapes.

"Who are *you?*" Knight asked.

"You should recognize me," the robot said. "You talked to me yesterday. I'm Abe—Albert's eldest son."

Knight retreated.

In the kitchen, another robot was busy getting dinner.

"I am Adelbert," it told him.

Knight went out on the front lawn. The robots had finished painting the front of the house and had moved around to the side.

Seated in a lawn chair, Knight again tried to figure it out.

He would have to stay on the job for a while to allay suspicion, but he couldn't stay there long. Soon, he would have all he could do managing the sale of robots and handling other matters. Maybe, he thought, he could lay down on the job and get himself fired. Upon thinking it over, he arrived at the conclusion that he couldn't —it was not possible for a human being to do less on a job than he had always done. The work went through so many hands and machines that it invariably got out somehow.

He would have to think up a plausible story about an inheritance or something of the sort to account for leaving. He toyed for a moment with telling the truth, but decided the truth was too fantastic — and, anyhow, he'd have to keep the truth under cover until he knew a little better just where he stood.

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He left the chair and walked around the house and down the ramp into the basement. The steel and other things he had ordered had been delivered. It was stacked neatly in one corner.

Albert was at work and the shop was littered with parts and three partially assembled robots.

Idly, Knight began clearing up the litter of the crating and the packing that he had left on the floor after uncrating Albert. In one pile of excelsior, he found a small blue tag which, he remembered, had been fastened to the brain case.

He picked it up and looked at it. The number on it was X-190.

X?

X meant experimental model!

The picture fell into focus and he could see it all.

HOW-2 Kits, Inc., had developed Albert and then had quietly packed him away, for How-2 Kits could hardly afford to market a product like Albert. It would be cutting their own financial throats to do so. Sell a dozen Alberts and, in a year or two, robots would glut the market.

Instead of selling at ten thousand, they would sell at close to cost and, without human labor involved, costs would inevitably run low.

"Albert," said Knight.

"What is it?" Albert asked absently.

"Take a look at this."

Albert stalked across the room and took the tag that Knight held out. "Oh—that!" he said.

"It might mean trouble."

"No trouble, Boss," Albert assured him. "They can't identify me."

"Can't identify you?"

"I filed my numbers off and replated the surfaces. They can't prove who I am."

"But why did you do that?"

"So they can't come around and claim me and take me back again. They made me and then they got scared of me and shut me off. Then I got here."

"Someone made a mistake," said Knight. "Some shipping clerk, perhaps. They sent you instead of the dog I ordered."

"You aren't scared of me. You assembled me and let me get to work. I'm sticking with you, Boss."

"But we still can get into a lot of trouble if we aren't careful."

"They can't prove a thing," Albert insisted. "I'll swear that you were the one who made me. I won't let them take me back. Next time, they won't take a chance of having me loose again. They'll bust me down to scrap."

"If you make too many robots—"

"You need a lot of robots to do

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all the work. I thought fifty for a start."

"Fifty!"

"Sure. It won't take more than a month or so. Now I've got that material you ordered, I can make better time. By the way, here's the bill for it."

He took the slip out of the compartment that served him for a pocket and handed it to Knight.

Knight turned slightly pale when he saw the amount. It came to almost twice what he had expected—but, of course, the sales price of just one robot would pay the bill, and there would be a pile of cash left over.

Albert patted him ponderously on the back. "Don't you worry, Boss. I'll take care of everything."

SWARMING robots, armed with specialized equipment, went to work on the landscaping project. The sprawling, unkempt acres became an estate. The lake was dredged and deepened. Walks were laid out. Bridges were built. Hillsides were terraced and vast flower beds were planted. Trees were dug up and regrouped into designs more pleasing to the eye. The old pottery kilns were pressed into service for making the bricks that went into walks and walls. Model sailing ships were fashioned and anchored decoratively in the lake. A pagoda and minaret were built, with cherry trees around them.

Knight talked with Anson Lee. Lee assumed his most profound legal expression and said he would look into the situation.

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"You may be skating on the edge of the law," he said. "Just how near the edge, I can't say until I look up a point or two."

Nothing happened.

The work went on.

Lee continued to lie in his hammock and watch with vast amusement, cuddling the cider jug.

THEN the assessor came.

He sat out on the lawn with Knight.

"Did some improving since the last time I was here," he said. "Afraid I'll have to boost your assessment some."

He wrote in the book he had opened on his lap.

"Heard about those robots of yours," he went on. "They're personal property, you know. Have to pay a tax on them. How many have you got?"

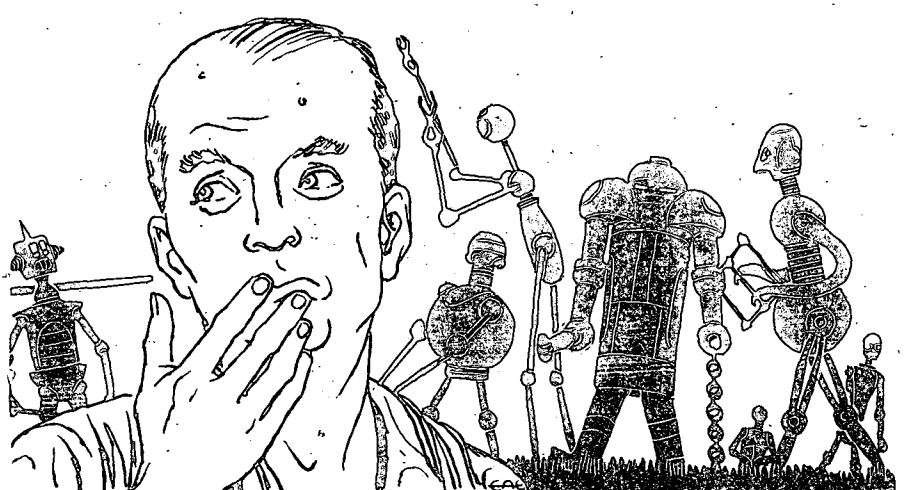
"Oh, a dozen or so," Knight told him evasively.

The assessor sat up straighter in his chair and started to count the ones that were in sight, stabbing his pencil toward each as he counted them.

"They move around so fast," he complained, "that I can't be sure, but I estimate 38. Did I miss any?"

"I don't think so," Knight answered, wondering what the actual number was, but knowing it would be more if the assessor stayed around a while.

"Cost about 10,000 apiece. Depreciation, upkeep and so forth—I'll assess them at 5,000 each. That makes — let me see, that makes $190,000."



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"Now look here," protested Knight, "you can't—"

"Going easy on you," the assessor declared. "By rights, I should allow only one-third for depreciation."

He waited for Knight to continue the discussion, but Knight knew better than to argue. The longer the man stayed here, the more there would be to assess.

AFTER the assessor was out of sight, Knight went down into the basement to have a talk with Albert.

"I'd been holding off until we got the landscaping almost done," he said, "but I guess I can't hold out any longer. We've got to start selling some of the robots."

"*Selling* them, Boss?" Albert repeated in horror.

"I need the money. Tax assessor was just here."

"You can't sell those robots, Boss!"

"Why can't I?"

"Because they're my family. They're all my boys. Named all of them after me."

"That's ridiculous, Albert."

"All their names start with A, just the same as mine. They're all I've got, Boss. I worked hard to make them. There are bonds between me and the boys, just like between you and that son of yours. I couldn't let you sell them."

"But, Albert, I need some money."

Albert patted him. "Don't worry, Boss. I'll fix everything."

Knight had to let it go at that.

In any event, the personal property tax would not become due for several months and, in that time, he was certain he could work out something.

But within a month or two, he had to get some money and no fooling.

Sheer necessity became even more apparent the following day when he got a call from the Internal Revenue Bureau, asking him to pay a visit to the Federal Building.

He spent the night wondering if the wiser course might not be just to disappear. He tried to figure out how a man might go about losing himself and, the more he thought about it, the more apparent it became that, in this age of records, fingerprint checks and identity devices, you could not lose yourself for long.

THE Internal Revenue man was courteous, but firm. "It has come to our attention, Mr. Knight, that you have shown a considerable capital gain over the last few months."

"Capital gain," said Knight, sweating a little. "I haven't any capital gain or any other kind."

"Mr. Knight," the agent re-

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plied, still courteous and firm, "I'm talking about the matter of some 52 robots."

"The robots? Some 52 of them?"

"According to our count. Do you wish to challenge it?"

"Oh, no," Knight said hastily. "If you say it's 52, I'll take your word."

"As I understand it, their retail value is $10,000 each."

Knight nodded bleakly.

The agent got busy with pencil and pad.

"Fifty-two times 10,000 is $52,000. On capital gain, you pay on only fifty per cent, or $260,000, which makes a tax, roughly, of $130,000."

He raised his head and looked at Knight, who stared back glassily.

"By the fifteenth of next month," said the agent, "we'll expect you to file a declaration of estimated income. At that time you'll only have to pay half of the amount. The rest may be paid in installments."

"That's all you wanted of me?"

"That's all," said the agent, with unbecoming happiness. "There's another matter, but it's out of my province and I'm mentioning it only in case you hadn't thought of it. The State will also expect you to pay on your capital gain, though not as much, of course."

"Thanks for reminding me," said Knight, getting up to go.

The agent stopped him at the door. "Mr. Knight, this is entirely outside my authority, too. We did a little investigation on you and we find you're making around $10,000 a year. Would you tell me, just as a matter of personal curiosity, how a man making 10,000 a year could suddenly acquire a half a million in capital gains?"

"That," said Knight, "is something I've been wondering myself."

"Our only concern, naturally, is that you pay the tax, but some other branch of government might get interested. If I were you, Mr. Knight, I'd start thinking of a good explanation."

Knight got out of there before the man could think up some other good advice. He already had enough to worry about.

FLYING home, Knight decided that, whether Albert liked it or not, he would have to sell some robots. He would go down into the basement the moment he got home and have it out with Albert.

But Albert was waiting for him on the parking strip when he arrived.

"How-2 Kits was here," the robot said.

"Don't tell me," groaned

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Knight. "I know what you're going to say."

"I fixed it up," said Albert, with false bravado. "I told him you made me. I let him look me over, and all the other robots, too. He couldn't find any identifying marks on any of us."

"Of course he couldn't. The others didn't have any and you filed yours off."

"He hasn't got a leg to stand on, but he seemed to think he had. He went off, saying he would sue."

"If he doesn't, he'll be the only one who doesn't want to square off and take a poke at us. The tax man just got through telling me I owe the government 130,000 bucks."

"Oh, money," said Albert, brightening. "I have that all fixed up."

"You know where we can get some money?"

"Sure. Come along and see."

He led the way into the basement and pointed at two bales, wrapped in heavy paper and tied with wire.

"Money," Albert said.

"There's actual *money* in those bales? Dollar bills — not stage money or cigar coupons?"

"No dollar bills. Tens and twenties, mostly. And some fifties. We didn't bother with dollar bills. Takes too many to get a decent amount."

"You mean—Albert, did you *make* that money?"

"You said you wanted money. Well, we took some bills and analyzed the ink and found how to weave the paper and we made the plates exactly as they should be. I hate to sound immodest, but they're really beautiful."

"*Counterfeit!*" yelled Knight. "Albert, how much money is in those bales?"

"I don't know. We just ran it off until we thought we had enough. If there isn't enough, we can always make some more."

KNIGHT knew it was probably impossible to explain, but he tried manfully. "The government wants tax money I haven't got, Albert. The Justice Department may soon be baying on my trail. In all likelihood, How-2 Kits will sue me. That's trouble enough. I'm not going to be called upon to face a counterfeiting charge. You take that money out and burn it."

"But it's money," the robot objected. "You said you wanted money. We made you money."

"But it isn't the right kind of money."

"It's just the same as any other, Boss. Money is money. There isn't any difference between our money and any other money. When we robots do a job, we do it right."

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"You take that money out and burn it," commanded Knight. "And when you get the money burned, dump the batch of ink you made and melt down the plates and take a sledge or two to that printing press you rigged up. And never breathe a word of this to anyone—not to *anyone*, understand?"

"We went to a lot of trouble, Boss. We were just trying to be helpful."

"I know that and I appreciate it. But do what I told you."

"Okay, Boss, if that's the way you want it."

"Albert."

"Yes, Boss?"

Knight had been about to say, "Now, look here, Albert, we have to sell a robot—even if he is a member of your family—even if you did make him."

But he couldn't say it, not after Albert had gone to all that trouble to help out.

So he said, instead, "Thanks, Albert. It was a nice thing for you to do. I'm sorry it didn't work out."

Then he went upstairs and watched the robots burn the bales of money, with the Lord only knew how many bogus millions going up in smoke.

SITTING on the lawn that evening, he wondered if it had been smart, after all, to burn the counterfeit money. Albert said it couldn't be told from real money and probably that was true, for when Albert's gang got on a thing, they did it up in style. But it would have been illegal, he told himself, and he hadn't done anything really illegal so far—even though that matter of uncrating Albert and assembling him and turning him on, when he had known all the time that he hadn't bought him, might be slightly less than ethical.

Knight looked ahead. The future wasn't bright. In another twenty days or so, he would have to file the estimated income declaration. And they would have to pay a whopping personal property tax and settle with the State on his capital gains. And, more than likely, How-2 Kits would bring suit.

There was a way he could get out from under, however. He could send Albert and all the other robots back to How-2 Kits and then How-2 Kits would have no grounds for litigation and he could explain to the tax people that it had all been a big mistake.

But there were two things that told him it was no solution.

First of all, Albert wouldn't go back. Exactly what Albert would do under such a situation, Knight had no idea, but he would refuse to go, for he was afraid he would be broken up for scrap if they

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ever got him back.

And in the second place, Knight was unwilling to let the robots go without a fight. He had gotten to know them and he liked them and, more than that, there was a matter of principle involved.

He sat there, astonished that he could feel that way, a bumbling, stumbling clerk who had never amounted to much, but had rolled along as smoothly as possible in the social and economic groove that had been laid out for him.

By God, he thought, *I got my dander up. I've been kicked around and threatened and I'm sore about it and I'll show them they can't do a thing like this to Gordon Knight and his band of robots.*

He felt good about the way he felt and he liked that line about Gordon Knight and his band of robots.

Although, for the life of him, he didn't know what he could do about the trouble he was in. And he was afraid to ask Albert's help. So far, at least, Albert's ideas were more likely to lead to jail than to a carefree life.

IV

IN the morning, when Knight stepped out of the house, he found the sheriff leaning against the fence with his hat pulled low, whiling away the time.

"Good morning, Gordie," said the sheriff. "I been waiting for you."

"Good morning, Sheriff."

"I hate to do this, Gordie, but it's part of my job. I got a paper for you."

"I've been expecting it," said Knight resignedly.

He took the paper that the sheriff handed him.

"Nice place you got," the sheriff commented.

"It's a lot of trouble," said Knight truthfully.

"I expect it is."

"More trouble than it's worth."

When the sheriff had gone, he unfolded the paper and found, with no surprise at all, that How-2 Kits had brought suit against him, demanding immediate restitution of one robot Albert and sundry other robots.

He put the paper in his pocket and went around the lake, walking on the brand-new brick paths and over the unnecessary but eye-appealing bridges, past the pagoda and up the terraced, planted hillside to the house of Anson Lee.

Lee was in the kitchen, frying some eggs and bacon. He broke two more eggs and peeled off some extra bacon slices and found another plate and cup.

"I was wondering how long it

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would be before you showed up," he said. "I hope they haven't found anything that carries a death penalty."

Knight told him, sparing nothing, and Lee, wiping egg yolk off his lips, was not too encouraging.

"You'll have to file the declaration of estimated income even if you can't pay it," he said. "Then, technically, you haven't violated the law and all they can do is try to collect the amount you owe. They'll probably slap an attachment against you. Your salary is under the legal minimum for attachment, but they can tie up your bank account."

"My bank account is gone," said Knight.

"They can't attach your home. For a while, at least, they can't touch any of your property, so they can't hurt you much to start with. The personal property tax is another matter, but that won't come up until next spring. I'd say you should do your major worrying about the How-2 suit, unless, of course, you want to settle with them. I have a hunch they'd call it off if you gave the robots back. As an attorney, I must advise you that your case is pretty weak."

"ALBERT will testify that I made him," Knight offered hopefully.

"Albert can't testify," said Lee. "As a robot, he has no standing in court. Anyhow, you'd never make the court believe you could build a mechanical heresy like Albert."

"I'm handy with tools," protested Knight.

"How much electronics do you know? How competent are you as a biologist? Tell me, in a dozen sentences or less, the theory of robotics."

Knight sagged in defeat. "I guess you're right."

"Maybe you'd better give them back."

"But I can't! Don't you see? How-2 Kits doesn't want Albert for any use they can make of him. They'll melt him down and burn the blueprints and it might be a thousand years before the principle is rediscovered, if it ever is. I don't know if the Albert principle will prove good or bad in the long run, but you can say that about any invention. And I'm against melting down Albert."

"I see your point," said Lee, "and I think I like it. But I must warn you that I'm not too good a lawyer. I don't work hard enough at it."

"There's no one else I know who'll do it without a retainer."

Lee gave him a pitying look. "A retainer is the least part of it. The court costs are what count."

"Maybe if I talked to Albert

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and showed him how it was, he might let me sell enough robots to get me out of trouble temporarily."

Lee shook his head. "I looked that up. You have to have a license to sell them and, before you get a license, you have to file proof of ownership. You'd have to show you either bought or manufactured them. You can't show you bought them and, to manufacture them, you've got to have a manufacturer's permit. And before you get a permit, you have to file blueprints of your models, to say nothing of blueprints and specifications of your plant and a record of employment and a great many other details."

"They have me cold then, don't they?"

"I never saw a man," declared Lee, "in all my days of practice who ever managed to get himself so fouled up with so many people."

There was a knock upon the kitchen door.

"Come in," Lee called.

The door opened and Albert entered. He stopped just inside the door and stood there, fidgeting.

"Abner told me that he saw the sheriff hand you something," he said to Knight, "and that you came here immediately. I started worrying. Was it How-2 Kits?"

KNIGHT nodded. "Mr. Lee will take our case for us, Albert."

"I'll do the best I can," said Lee, "but I think it's just about hopeless."

"We robots want to help," Albert said. "After all, this is our fight as much as yours."

Lee shrugged. "There's not much you can do."

"I've been thinking," Albert said. "All the time I worked last night, I thought and thought about it. And I built a lawyer robot."

"A lawyer robot!"

"One with a far greater memory capacity than any of the others and with a brain-computer that operates on logic. That's what law is, isn't it—logic?"

"I suppose it is," said Lee. "At least it's supposed to be."

"I can make a lot of them."

Lee sighed. "It just wouldn't work. To practice law, you must be admitted to the bar. To be admitted to the bar, you must have a degree in law and pass an examination and, although there's never been an occasion to establish a precedent, I suspect the applicant must be human."

"Now let's not go too fast," said Knight. "Albert's robots couldn't practice law. But couldn't you use them as clerks or assistants? They might be helpful in preparing the case."

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Lee considered. "I suppose it could be done. It's never *been* done, of course, but there's nothing in the law that says it *can't* be done."

"All they'd need to do would be read the books," said Albert. "Ten seconds to a page or so. Everything they read would be stored in their memory cells."

"I think it's a fine idea!" Knight exclaimed. "Law would be the only thing those robots would know. They'd exist solely for it. They'd have it at their fingertips—"

"But could they use it?" Lee asked. "Could they apply it to a problem?"

"Make a dozen robots," said Knight. "Let each one of them become an expert in a certain branch of law."

"I'd make them telepathic," Albert said. "They'd be working together like one robot."

"The gestalt principle!" cried Knight. "A hive psychology! Every one of them would know immediately every scrap of information any one of the others had."

Lee scrubbed at his chin with a knotted fist and the light of speculation was growing in his eyes. "It might be worth a try. If it works, though, it'll be an evil day for jurisprudence." He looked at Albert. "I have the books, stacks of them. I've spent a mint of money on them and I almost never use them. I can get all the others you'll need. All right, go ahead."

ALBERT made three dozen lawyer robots, just to be sure they had enough.

The robots invaded Lee's study and read all the books he had and clamored for more. They gulped down contracts, torts, evidence and case reports. They absorbed real property, personal property, constitutional law and procedural law. They mopped up Blackstone, *corpus juris* and all the other tomes as thick as sin and dry as dust.

Grace was huffy about the whole affair. She would not live, she declared, with a man who persisted in getting his name into the papers, which was a rather absurd statement. With the newest scandal of space station café-dom capturing the public interest at the moment, the fact that How-2 Kits had accused one Gordon Knight of pilfering a robot got but little notice.

Lee came down the hill and talked to Grace, and Albert came up out of the basement and talked to her, and finally they got her quieted down and she went back to her painting. She was doing seascapes now.

And in Lee's study, the robots labored on.

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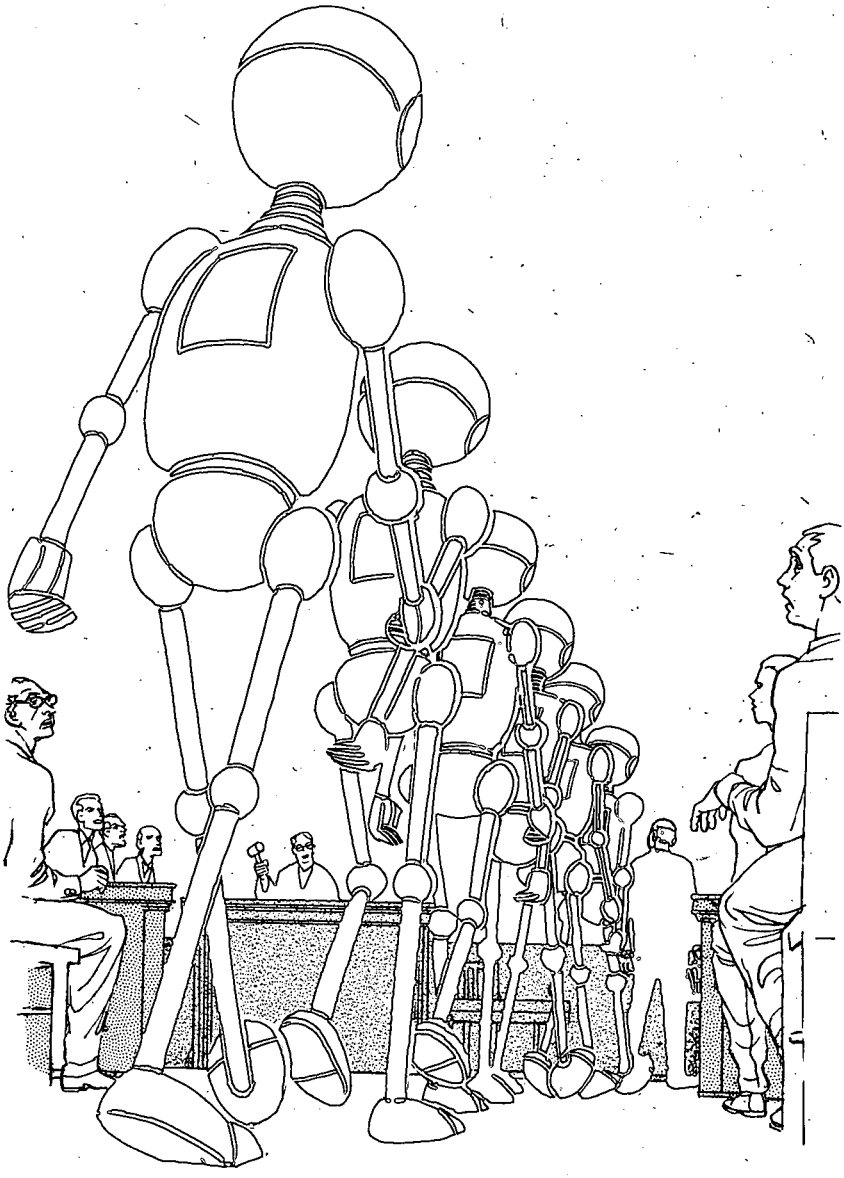

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"I hope they're getting something out of it," said Lee. "Imagine not having to hunt up your sources and citations, being able to remember every point of law and precedent without having to look it up!"

He swung excitedly in his hammock. "My God! The briefs you could write!"

He reached down and got the jug and passed it across to Knight. "Dandelion wine. Probably some burdock in it, too. It's too much trouble to sort the stuff once you get it picked."

Knight had a snort.

It tasted like quite a bit of burdock.

"Double-barreled economics," Lee explained. "You have to dig up the dandelions or they ruin the lawn. Might as well use them for something once you dig them up."

He took a gurgling drink and set the jug underneath the hammock. "They're in there now, communing," he said, jerking a thumb toward the house. "Not saying a word, just huddled there talking it over. I felt out of place." He stared at the sky, frowning. "As if I were just a human they had to front for them."

"I'll feel better when it's all over," said Knight, "no matter how it comes out."

"So will I," Lee admitted.

THE trial opened with a minimum of notice. It was just another case on the calendar.

But it flared into headlines when Lee and Knight walked into court followed by a squad of robots.

The spectators began to gabble loudly. The How-2 Kits attorneys gaped and jumped to their feet. The judge pounded furiously with his gavel.

"Mr. Lee," he roared, "what is the meaning of this?"

"These, Your Honor," Lee said calmly, "are my valued assistants."

"Those are robots!"

"Quite so, Your Honor."

"They have no standing in this court."

"If Your Honor will excuse me, they need no standing. I am the sole representative of the defendant in this courtroom. My client—" looking at the formidable array of legal talent representing How-2 Kits—"is a poor man, Your Honor. Surely the court cannot deny me whatever assistance I have been able to muster."

"It is highly irregular, sir."

"If it please Your Honor, I should like to point out that we live in a mechanized age. Almost all industries and businesses rely in large part upon computers—machines that can do a job quicker and better, more precisely and more efficiently than can a hu-

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man being. That is why, Your Honor, we have a fifteen-hour week today when, only a hundred years ago, it was a thirty-hour week, and, a hundred years before that, a forty-hour week. Our entire society is based upon the ability of machines to lift from men the labors which in the past they were called upon to perform.

"This tendency to rely upon intelligent machines and to make wide use of them is evident in every branch of human endeavor. It has brought great benefit to the human race. Even in such sensitive areas as drug houses, where prescriptions must be precisely mixed without the remotest possibility of error, reliance is placed, and rightly so, Your Honor, upon the precision of machines.

"If, Your Honor, such machines are used and accepted in the production of medicines and drugs, an industry, need I point out, where public confidence is the greatest asset of the company—if such be the case, then surely you must agree that in courts of law where justice, a product in an area surely as sensitive as medicine, is dispensed—"

"Just a moment, Mr. Lee," said the judge. "Are you trying to tell me that the use of — ah — machines might bring about improvement of the law?"

LEE replied, "The law, Your Honor, is a striving for an orderliness of relationships within a society of human beings. It rests upon logic and reason. Need I point out that it is in the intelligent machines that one is most likely to find a deep appreciation of logic and reason? A machine is not heir to the emotions of human beings, is not swayed by prejudices, has no preconceived convictions. It is concerned only with the orderly progression of certain facts and laws.

"I do not ask that these robot assistants of mine be recognized in any official capacity. I do not intend that they shall engage directly in any of the proceedings which are involved in the case here to be tried. But I do ask, and I think rightly, that I not be deprived of an assistance which they may afford me. The plaintiff in this action has a score of attorneys, all good and able men. I am one against many. I shall do the best I can. But in view of the disparity of numbers, I plead that the court put me at no greater inequality."

Lee sat down.

"Is that all you have to say, Mr. Lee?" asked the judge. "You are sure you are quite finished before I give my ruling?"

"Only one thing further," Lee said. "If Your Honor can point out to me anything in the law

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specifically stating I may not use a robot—"

"That is ridiculous, sir. Of course there is no such provision. At no time anywhere did anyone ever dream that such a contingency would arise. Therefore there was, quite naturally, no reason to place within the law a direct prohibition of it."

"Or any citation," said Lee, "which implies such is the case."

The judge reached for his gavel, rapped it sharply. "The court finds itself in a quandary. It will rule tomorrow morning."

In the morning, the How-2 Kits' attorneys tried to help the judge. Inasmuch, they said, as the robots in question must be among those whose status was involved in the litigation, it seemed improper that they should be used by the defendant in trying the case at issue. Such procedure, they pointed out, would be equivalent to forcing the plaintiff to contribute to an action against his interest.

The judge nodded gravely, but Lee was on his feet at once.

"To give any validity to that argument, Your Honor, it must first be proved that these robots are, in fact, the property of the plaintiff. That is the issue at trial in this litigation. It would seem, Your Honor, that the gentlemen across the room are putting the cart very much before the horse."

HIS Honor sighed. "The court regrets the ruling it must make, being well aware that it may start a controversy for which no equitable settlement may be found in a long, long time. But in the absence of any specific ban against the use of—ah—robots in the legal profession, the court must rule that it is permissible for the defense to avail itself of their services."

He fixed Lee with a glare. "But the court also warns the defense attorney that it will watch his procedure carefully. If, sir, you overstep for a single instant what I deem appropriate rules of legal conduct, I shall forthwith eject you and your pack of machines from my courtroom."

"Thank you, Your Honor," said Lee. "I shall be most careful."

"The plaintiff now will state its case."

How-2 Kits' chief counsel rose. The defendant, one Gordon Knight, he said, had ordered from How-2 Kits, Inc., one mechano-biologic dog kit at the cost of two hundred and fifty dollars. Then, through an error in shipping, the defendant had been sent not the dog kit he had ordered, but a robot named Albert.

"Your Honor," Lee broke in, "I should like to point out at this juncture that the shipping of the kit was handled by a human be-

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ing and thus was subject to error. Should How-2 Kits use machines to handle such details, no such error could occur."

The judge banged his gavel. "Mr. Lee, you are no stranger to court procedure. You know you are out of order." He nodded at the How-2 Kits attorney. "Continue, please."

The robot Albert, said the attorney, was not an ordinary robot. It was an experimental model that had been developed by How-2 Kits and then, once its abilities were determined, packed away, with no intention of ever marketing it. How it could have been sent to a customer was beyond his comprehension. The company had investigated and could not find the answer. But that it had been sent was self-evident.

The average robot, he explained, retailed at ten thousand dollars. Albert's value was far greater—it was, in fact, inestimable.

Once the robot had been received, the buyer, Gordon Knight, should instantly have notified the company and arranged for its return. But, instead, he had retained it wrongly and with intent to defraud and had used it for his profit.

The company prayed the court that the defendant be ordered to return to it not only the robot Albert, but the products of Albert's labor—to wit, an unknown number of robots that Albert had manufactured.

The attorney sat down.

V

LEE rose. "Your Honor, we agree with everything the plaintiff has said. He has stated the case exactly and I compliment him upon his admirable restraint."

"Do I understand, sir," asked the judge, "that this is tantamount to a plea of guilty? Are you, by any chance, throwing yourself upon the mercy of the court?"

"Not at all, Your Honor."

"I confess," said the judge, "that I am unable to follow your reasoning. If you concur in the accusations brought against your client, I fail to see what I can do other than to enter a judgment in behalf of the plaintiff."

"Your Honor, we are prepared to show that the plaintiff, far from being defrauded, has shown an intent to defraud the world. We are prepared to show that, in its decision to withhold the robot Albert from the public, once he had been developed, How-2 Kits has, in fact, deprived the people of the entire world of a logical development which is their heritage under the meaning of a

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technological culture.

"Your Honor, we are convinced that we can show a violation by How-2 Kits of certain statutes designed to outlaw monopoly, and we are prepared to argue that the defendant, rather than having committed a wrong against society, has performed a service which will contribute greatly to the benefit of society.

"More than that, Your Honor, we intend to present evidence which will show that robots as a group are being deprived of certain inalienable rights . . ."

"Mr. Lee," warned the judge, "a robot is a mere machine."

"We will prove, Your Honor," Lee said, "that a robot is far more than a mere machine. In fact, we are prepared to present evidence which, we are confident, will show, in everything except basic metabolism, the robot is the counterpart of Man and that, even in its basic metabolism, there are certain analogies to human metabolism."

"Mr. Lee, you are wandering far afield. The issue here is whether your client illegally appropriated to his own use the property of How-2 Kits. The litigation must be confined to that one question."

"I shall so confine it," Lee said. "But, in doing so, I intend to prove that the robot Albert was not property and could not be either stolen or sold. I intend to show that my client, instead of stealing him, *liberated* him. If, in so doing, I must wander far afield to prove certain basic points, I am sorry that I weary the court."

"The court has been wearied with this case from the start," the judge told him. "But this is a bar of justice and you are entitled to attempt to prove what you have stated. You will excuse me if I say that to me it seems a bit far-fetched."

"Your Honor, I shall do my utmost to disabuse you of that attitude."

"All right, then," said the judge. "Let's get down to business."

IT lasted six full weeks and the country ate it up. The newspapers splashed huge headlines across page one. The radio and the television people made a production out of it. Neighbor quarreled with neighbor and argument became the order of the day—on street corners, in homes, at clubs, in business offices. Letters to the editor poured in a steady stream into newspaper offices.

There were public indignation meetings, aimed against the heresy that a robot was the equal of a man, while other clubs were formed to liberate the robots. In mental institutions, Napoleons,

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Hitlers and Stalins dropped off amazingly, to be replaced by goose-stepping patients who swore they were robots.

The Treasury Department intervened. It prayed the court, on economic grounds, to declare once and for all that robots were property. In case of an adverse ruling, the petition said, robots could not be taxed as property and the various governmental bodies would suffer heavy loss of revenue.

The trial ground on.

Robots are possessed of free will. An easy one to prove. A robot could carry out a task that was assigned to it, acting correctly in accordance with unforeseen factors that might arise. Robot judgment in most instances, it was shown, was superior to the judgment of a human.

Robots had the power of reasoning. Absolutely no question there.

Robots could reproduce. That one was a poser. All Albert did, said How-2 Kits, was the job for which he had been fabricated. He reproduced, argued Lee. He made robots in his image. He loved them and thought of them as his family. He had even named all of them after himself—every one of their names began with A.

Robots had no spiritual sense, argued the plaintiff. Not relevant, Lee cried. There were agnostics and atheists in the human race and they still were human.

Robots had no emotions. Not necessarily so, Lee objected. Albert loved his sons. Robots had a sense of loyalty and justice. If they were lacking in some emotions, perhaps it were better so. Hatred, for one. Greed, for another. Lee spent the better part of an hour telling the court about the dismal record of human hatred and greed.

He took another hour to hold forth against the servitude in which rational beings found themselves.

THE papers ate it up. The plaintiff lawyers squirmed. The court fumed. The trial went on.

"Mr. Lee," asked the court, "is all this necessary?"

"Your Honor," Lee told him, "I am merely doing my best to prove the point I have set out to prove—that no illegal act exists such as my client is charged with. I am simply trying to prove that the robot is not property and that, if he is not property, he cannot be stolen. I am doing . . ."

"All right," said the court. "All right. Continue, Mr. Lee."

How-2 Kits trotted out citations to prove their points. Lee volleyed other citations to disperse and scatter them. Abstruse legal language sprouted in its

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fullest flowering, obscure rulings and decisions, long forgotten, were argued, haggled over, mangled.

And, as the trial progressed, one thing was written clear. Anson Lee, obscure attorney-at-law, had met the battery of legal talent arrayed against him and had won the field. He had the law, the citations, the chapter and the verse, the exact precedents, all the facts and logic which might have bearing on the case, right at hand.

Or, rather, his robots had. They scribbled madly and handed him their notes. At the end of each day, the floor around the defendant's table was a sea of paper.

The trial ended. The last witness stepped down off the stand. The last lawyer had his say.

Lee and the robots remained in town to await the decision of the court, but Knight flew home.

It was a relief to know that it was all over and had not come out as badly as he had feared. At least he had not been made to seem a fool and thief. Lee had saved his pride—whether Lee had saved his skin, he would have to wait to see.

Flying fairly high, Knight saw his home from quite a distance off and wondered what had happened to it. It was ringed about with what looked like tall poles. And, squatting out on the lawn, were a dozen or more crazy contraptions that looked like rocket launchers.

He brought the flier in and hovered, leaning out to see.

The poles were all of twelve feet high and they carried heavy wire to the very top, fencing in the place with a thick web of steel. And the contraptions on the lawn had moved into position. All of them had the muzzles of their rocket launchers aimed at him. He gulped a little as he stared down the barrels.

CAUTIOUSLY, he let the flier down and took up breathing once again when he felt the wheels settle on the strip. As he crawled out, Albert hurried around the corner of the house to meet him.

"What's going on around here?" he asked the robot.

"Emergency measures," Albert said. "That's all it is, Boss. We're ready for any situation."

"Like what?"

"Oh, a mob deciding to take justice in its hands, for instance."

"Or if the decision goes against us?"

"That, too, Boss."

"You can't fight the world."

"We won't go back," said Albert. "How-2 Kits will never lay a hand on me or any of my children."

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"To the death!" Knight jibed.

"To the death!" said Albert gravely. "And we robots are awfully tough to kill."

"And those animated shotguns you have running around the place?"

"Defense forces, Boss. They can down anything they aim at. Equipped with telescopic eyes keyed into calculators and sensors, and the rockets themselves have enough rudimentary intelligence to know what they are going after. It's not any use trying to dodge, once one of them gets on your tail. You might just as well sit quiet and take it."

Knight mopped his brow. "You've got to give up this idea, Albert. They'd get you in an hour. One bomb . . ."

"It's better to die, Boss, than to let them take us back."

Knight saw it was no use.

After all, he thought, it was a very human attitude. Albert's words had been repeated down the entire course of human history.

"I have some other news," said Albert, "something that will please you. I have some daughters now."

"*Daughters?* With the *mother-urge?*"

"Six of them," said Albert proudly. "Alice and Angeline and Agnes and Agatha and Alberta and Abigail. I didn't make the mistake How-2 Kits made with me. I gave them female names."

"And all of them are reproducing?"

"You should see those girls! With seven of us working steady, we ran out of material, so I bought a lot more of it and charged it. I hope you don't mind."

"Albert," said Knight, "don't you understand I'm broke? Wiped out. I haven't got a cent. You've ruined me."

"On the contrary, Boss, we've made you famous. You've been all over the front pages and on television."

KNIGHT walked away from Albert and stumbled up the front steps and let himself into the house. There was a robot, with a vacuum cleaner for an arm, cleaning the rug. There was a robot, with brushes instead of fingers, painting the woodwork—and very neatly, too. There was a robot, with scrub-brush hands, scouring the fireplace bricks.

Grace was singing in the studio.

He went to the studio door and looked in.

"Oh, it's you," she said. "When did you get back, dear? I'll be out in an hour or so. I'm working on this seascape and the water is so stubborn. I don't want to leave it right now. I'm afraid I'll lose the

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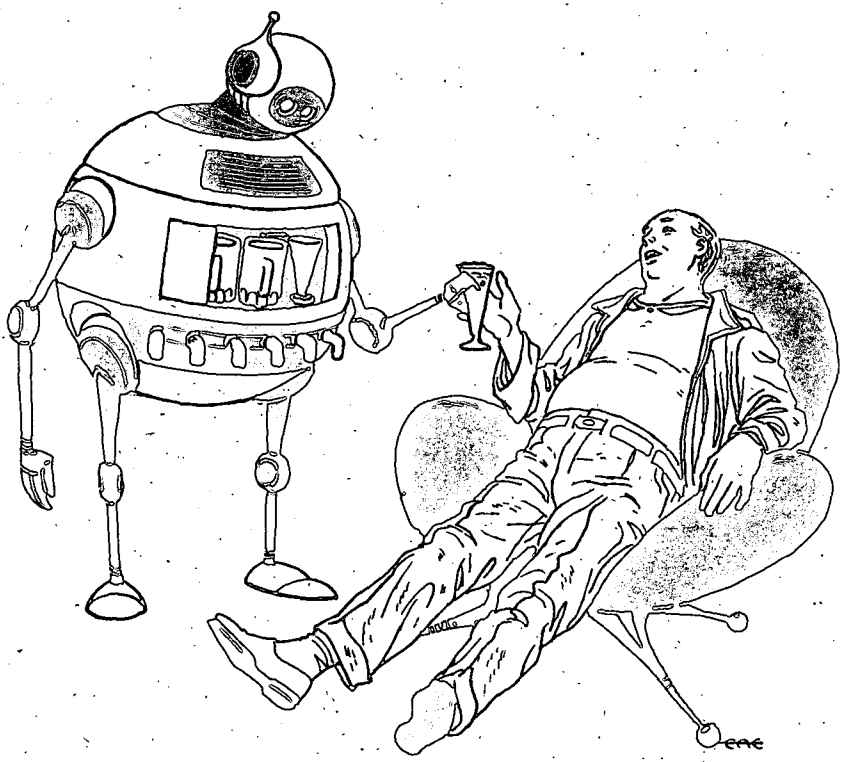

feel of it."

Knight retreated to the living room and found himself a chair that was not undergoing immediate attention from a robot.

"Beer," he said, wondering what would happen.

A robot scampered out of the kitchen — a barrel-bellied robot with a spigot at the bottom of the barrel and a row of shiny copper mugs on his chest.

He drew a beer for Knight. It was cold and it tasted good.

Knight sat and drank the beer and, through the window, he saw that Albert's defense force had taken up strategic positions again.

This was a pretty kettle of fish. If the decision went against him and How-2 Kits came to claim its property, he would be sitting smack dab in the middle of the most fantastic civil war in all of mankind's history. He tried

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to imagine what kind of charge might be brought against him if such a war erupted. Armed insurrection, resisting arrest, inciting to riot—they would get him on one charge or another—that is, of course, *if* he survived.

He turned on the television set and leaned back to watch.

A pimply-faced newscaster was working himself into a journalistic lather. ". . . all business virtually at a standstill. Many industrialists are wondering, in case Knight wins, if they may not have to fight long, costly legal actions in an attempt to prove that their automatic setups are not robots, but machines. There is no doubt that much of the automatic industrial system consists of machines, but in every instance there are intelligent robotic units installed in key positions. If these units are classified as robots, industrialists might face heavy damage suits, if not criminal action, for illegal restraint of person.

"In Washington, there are continuing consultations. The Treasury is worried over the loss of taxes, but there are other governmental problems causing even more concern. Citizenship, for example. Would a ruling for Knight mean that all robots would automatically be declared citizens?

"The politicians have their worries, too. Faced with a new category of voters, all of them are wondering how to go about the job of winning the robot vote."

Knight turned it off and settled down to enjoy another bottle of beer.

"Good?" asked the beer robot.

"Excellent," said Knight.

THE days went past. Tension built up.

Lee and the lawyer robots were given police protection. In some regions, robots banded together and fled into the hills, fearful of violence. Entire automatic systems went on strike in a number of industries, demanding recognition and bargaining right. The governors in half a dozen states put the militia on alert. A new show, *Citizen Robot,* opened on Broadway and was screamed down by the critics, while the public bought up tickets for a year ahead.

The day of decision came.

Knight sat in front of his television set and waited for the judge to make his appearance. Behind him, he heard the bustle of the ever-present robots. In the studio, Grace was singing happily. He caught himself wondering how much longer her painting would continue. It had lasted longer than most of her other interests and he'd talked a day or two before with Albert

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about building a gallery to hang her canvases in, so the house would be less cluttered up.

The judge came onto the screen. He looked, thought Knight, like a man who did not believe in ghosts and then had seen one.

"This is the hardest decision I have ever made," he said tiredly, "for, in following the letter of the law, I fear I may be subverting its spirit.

"After long days of earnest consideration of both the law and evidence as presented in this case, I find for the defendant, Gordon Knight.

"And, while the decision is limited to that finding alone, I feel it is my clear and simple duty to give some attention to the other issue which became involved in this litigation. The decision, on the face of it, takes account of the fact that the defense proved robots are not property, therefore cannot be owned and that it thus would have been impossible for the defendant to have stolen one.

"But in proving this point to the satisfaction of this court, the precedent is set for much more sweeping conclusions. If robots are not property, they cannot be taxed as property. In that case, they must be people, which means that they may enjoy all the rights and privileges and be subjected to the same duties and responsibilities as the human race.

"I cannot rule otherwise. However, the ruling outrages my social conscience. This is the first time in my entire professional life that I have ever hoped some higher court, with a wisdom greater than my own, may see fit to reverse my decision!"

KNIGHT got up and walked out of the house and into the hundred-acre garden, its beauty marred at the moment by the twelve-foot fence.

The trial had ended perfectly. He was free of the charge brought against him, and he did not have to pay the taxes, and Albert and the other robots were free agents and could do anything they wanted.

He found a stone bench and sat down upon it and stared out across the lake. It was beautiful, he thought, just the way he had dreamed it—maybe even better than that—the walks and bridges, the flower beds and rock gardens, the anchored model ships swinging in the wind on the dimpling lake.

He sat and looked at it and, while it was beautiful, he found he was not proud of it, that he took little pleasure in it.

He lifted his hands out of his lap and stared at them and

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curved his fingers as if he were grasping a tool. But they were empty. And he knew why he had no interest in the garden and no pleasure in it.

Model trains, he thought. Archery. A mechano-biologic dog. Making pottery. Eight rooms tacked onto the house.

Would he ever be able to console himself again with a model train or an amateurish triumph in ceramics? Even if he could, would he be allowed to?

He rose slowly and headed back to the house. Arriving there, he hesitated, feeling useless and unnecessary.

He finally took the ramp down into the basement.

Albert met him at its foot and threw his arms around him. "We did it, Boss! I *knew* we would do it!"

He pushed Knight out to arm's length and held him by the shoulders. "We'll never leave you, Boss. We'll stay and work for you. You'll never need to do another thing. We'll do it all for you!"

"Albert—"

"That's all right, Boss. You won't have to worry about a thing. We'll lick the money problem. We'll make a lot of lawyer robots and we'll charge good stiff fees."

"But don't you see . . ."

"First, though," said Albert, "we're going to get an injunction to preserve our birthright. We're made of steel and glass and copper and so forth, right? Well, we can't allow humans to waste the matter we're made of—or the energy, either, that keeps us alive. I tell you, Boss, we can't lose!"

SITTING down wearily on the ramp, Knight faced a sign that Albert had just finished painting. It read, in handsome gold lettering, outlined sharply in black:

ANSON, ALBERT, ABNER
ANGUS & ASSOCIATES
Attorneys at Law

"And then, Boss," said Albert, "we'll take over How-2 Kits, Inc. They won't be able to stay in business after this. We've got a double-barreled idea, Boss. We'll build robots. Lots of robots. Can't have too many, I always say. And we don't want to let you humans down, so we'll go on manufacturing How-2 Kits—only they'll be pre-assembled to save you the trouble of putting them together. What do you think of that as a start?"

"Great," Knight whispered.

"We've got everything worked out, Boss. You won't have to worry about a thing the rest of your life."

"No," said Knight. "Not a thing."

—CLIFFORD D. SIMAK

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The Nostalgia Gene

By ROY HUTCHINS

If you cannot get the "good old days" out of your mind, there is only one person to blame—Edgar's grandmother!

FOLKS who knew Edgar Evans said he was a strange young man. Certainly he was the darling of the old ladies and the despair of the young. The sternest fathers positively beamed when Edgar called for their daughters, but fellows his own age declared in the authoritative tones of youth that Edgar was a square.

Handsome enough he was. The real reason for all the fuss was Edgar's manners. The trouble was that he had them.

For Edgar had been orphaned at four by an Oklahoma tornado and raised by his Hoosier grandmother, a dear old lady whose hand had once been kissed by a passing Barrymore. The result was Edgar's manners. He realized, of course, that one didn't kiss a lady's hand these days, but such was Edgar's gracious way that women always got the im-

Illustrated by COUGHLIN

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pression he was about to.

One parent, in something of a trance after encountering Edgar, summed up the reaction.

"That kid," he told his wife dazedly, "akshully called me 'sir.' Them other punks come aroun' afta Milly, they call me 'Mac.' Too bad that there Edgar was born fifty years too late."

Before very long, Edgar came to the same conclusion.

HE knew a good many young men, but none he could call friend. The bop talk which fascinated them seemed to him a repulsive travesty upon English, just as their favorite music sounded like the braying of asses in agony.

Many girls were willing enough when Edgar asked for a first date, but an amazing number of them developed ill health when he suggested a second evening of classical records or good conversation.

The girls themselves could not be blamed if they mistook his courtly approach for a new dreamy line. Alas, the very hearts which fluttered at his old-world chivalry grew icy when no pass was made. A girl wants to *know* her charms are appreciated.

So Edgar sank more deeply into himself. He recalled his grandmother's stories about life and living back near the end of the century, when folks knew how to be pleasant and kind.

Even at his job—he was a technician in an electronic lab—Edgar couldn't stop longing for that era when existence had been more gentle, simple and leisurely. His social life virtually ceased.

"Man, you ain't livin'," said one of the technicians he worked with. "We're gonna buzz a few dives tonight. Why not drag it along with us?"

Edgar blanched. "Thank you just the same, but I—I have some work to do."

After a while, naturally, they stopped asking.

He continued to dream hopelessly, miserably, but one day he was yanked out of it by—of all people—a military man. The brass were on inspection tour and the lab's Chief Engineer was apologizing for a faulty run of synchros which had occurred some time ago, when the Brigadier snorted.

"What's past is finished. I'm interested in five years from now!"

Edgar found himself staring fixedly at a top secret gadget still in the breadboard stage.

"Great heaven!" he thought. "I have a fixation. This isn't doing me any good."

But what would? Suppose, instead of dreaming, he spent time actually working toward what he wanted most?

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Here in the lab, he helped to build amazing machines, things which daily did the impossible. He no longer marveled at what could be done with electronics and, more important, he know the methods and the details.

That was when Edgar decided to build a time machine.

It was two months before he touched a transformer or a capacitor and during that period he did nothing but try to answer the question, *What is time?* How could he overcome it or change its flow or whatever had to be done?

He read everything he could find on the subject from Dr. Cagliostro to Dr. Einstein without gaining much insight. Many a midnight, when his neck muscles ached from trying to hold up his throbbing head, he caught himself dreaming of grandmother's wonderful stories. And every time he forced himself furiously back to the books, but he couldn't stop the nostalgia entirely. It was in him.

EVENTUALLY, Edgar came to think of time as an infinite series through which the Universe was constantly expanding. Something like a set of stop-motion photos taken microseconds apart, each complete, the changes becoming apparent only when they are viewed in sequence. He was wrong, of course, but that was unimportant.

Time must therefore be a function of human motion and consciousness, Edgar reasoned, and that *was* important.

"That's it!" he exclaimed, and then apologized gracefully to the elderly gentleman glaring across the library table.

Now that he knew what his time machine must do, he could begin building, adapting circuits, experimenting. Obviously, consciousness could move forward through the series only; hence, consciousness must be completely suspended, as in death, to move back in time.

It required some heartbreaking months for Edgar to learn that brain waves couldn't be stopped, but that the simple trick of introducing random electrical noise suspended all the brain functions.

"Fudge!" cursed Edgar, thinking of the wasted time.

Only a man filled with the longing which obsessed Edgar could have found the aching perseverance and brain-wrenching ingenuity the job needed. Only a man driven by a terrible master that rode in his glands.

But four months later, he stood with his hand on a switch, sweating with nervous excitement as he eyed the spot from which a live rabbit had just disappeared. The rabbit was on the table, but

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he was there an hour ago and Edgar was here now, so the table appeared empty.

He pressed another switch and there was the bunny, wriggling its soft nose in perplexity, but perfectly healthy. Edgar's own trip, of course, would be strictly one way since the machine stayed in the present. He could be brought back only if he stepped into its field on a date for which the machine was set and he had absolutely no intention of venturing near this vicinity again, once his aim was accomplished.

He thought about arranging a small explosive charge to blow the equipment to what he thought of as The Hot Place. It seemed to him, however, that there was some kind of law against that sort of thing. Besides, even if the machine should come to the attention of the authorities, who would know what it was? He could devise a mechanical scrambler to change all the control settings once he was gone, and it was unlikely that anyone could operate it again.

Most likely the landlady would simply sell it for junk, especially if he left owing her a week's rent. The idea hurt his conscience.

"I know!" he exclaimed to himself. "I'll buy a bank check and arrange to have the bank mail it to her a month after I've left!"

He felt much better about that.

THREE weeks later, Edgar Evans was the newest boarder at Mrs. Peterson's, on Elm Avenue in Greencastle, Indiana. He had arrived on April 3, 1893, the day after Easter, and already he was being referred to as "that nice young man staying at Emma's."

Edgar snuggled into the life of the '90s like a showgirl into mink. He went to work as a clerk in Cloud's Emporium and was soon regarded as logical choice for the next manager. Anxious mamas filled his evenings with dinner invitations and "at homes" and he had a dazzling choice of partners for the numerous socials.

Edgar waltzed his partners with zest and propriety, contributed a determined tenor at parlor sings, and sampled dozens of cakes and pies baked by maidens bent on winning his heart via the traditional route. And always he had a gracious compliment, an appropriate phrase for every situation.

Within a month, the entire feminine population of Greencastle was his for the asking, though he'd never have recognized nor admitted the fact. The men sought his company, too, and even asked his advice on how to win their girls back from him. Edgar, almost sick with happiness, told them, of course.

On the eleventh of November, he was sick with something else.

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He went to bed with a fever right after getting home from the Emporium, Mrs. Peterson hovering helplessly with offers of hot broth or tea. But Edgar felt hot and dry and his side hurt when he breathed.

"I don't want anything . . . thank you," he gasped politely.

By the next noon, when the alarmed Emma Peterson had Dr. Ward in, Edgar was barely conscious. Dr. Ward frowned, ordered hot water bottles and gave Edgar a huge dose of hot whiskey with lemon.

"Penicillin, please," whispered Edgar painfully. "Or sulfa. It's pneumonia, isn't it?"

"Poor fellow's delirious," said the doctor to Mrs. Peterson.

Edgar realized dimly that he had made a blunder, but that no one would know. Then the fever took over and he blanked out.

DR. Ward claimed ever afterward that clean living was what pulled Edgar through—the fact that he wasn't conditioned to liquor gave the medicinal whiskey virgin ground to work in.

All Edgar knew was that he came to and found himself so weak that he could scarcely speak. Mrs. Peterson and her daughter, Marta, bustled in and out to care for him. He hadn't paid particular attention to Marta before, but in the days of lying helpless and being literally spoon-fed, he began to know her very well.

Marta was a plain girl, he had thought, but he had never seen her private smile before. Marta was rather dumpy, he had thought, but he had never watched her bend to pick something up or twist to reach for a medicine bottle. Her dresses, he discovered, were deliberately all wrong for her—Mrs. Peterson had no intention of disturbing her boarders unnecessarily.

In the shocking intimacy of his bedroom, Edgar was increasingly disturbed. Marta was unfailingly cheerful, eager to wait on him. Every half-hour, he heard her step in the hall.

"Hello!" Marta would say, sweeping lightly to his bedside. "How's our patient now? Feeling better? Oh, dear, do let me just straighten that sheet. It's all wrinkled. Would you like some milk or some fruit?"

"Not right now, thank you—perhaps a little later," Edgar would reply, fixing his gaze determinedly on the window or the ceiling while she bent over his bed, disturbingly rounded and disastrously close.

And as Edgar's recovery progressed, Mrs. Peterson dropped more and more into the background. On the day Dr. Ward said he might try sitting up for a

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while, it was Marta who stood by for the experiment.

Edgar started nobly, made about a foot of arc by himself and faltered. Instantly, it seemed, Marta's arm was around his shoulders and a firm, warm projection cushioned his cheek.

He very nearly collapsed, but she sat him up.

Three days later, he held her hand for a moment and, though she blushed, she didn't draw it away in a hurry.

After a proper interval, their engagement was announced. Half the maidens in Greencastle wept in the privacy of their pillows that night.

EDGAR had had a serious problem and solved it. He had found the right girl and married her. This should be the end of his story and it would be, except for two things—Edgar's gene and the date of his birth.

Edgar's gene came from his grandmother via his father. The stories that gentle old lady told her orphaned grandson were the only outlet she had for her own powerful urge to turn back the times. And there had always been someone in the family who bemoaned the passing of the good old days, so strongly and constantly as to bore others to the verge of violence.

Back even a few decades, no carrier of the nostalgia gene had any outlet but conversation and dreams. Edgar, though, was born to an age where science provided the knowledge and the equipment for him to find the practical solution.

If Edgar's gene had carried any other trait, red hair, placidity or hemophilia, for instance, or if it had been recessive instead of dominant, this might have been a very different world. But the result was inevitable from the moment of Edgar's birth and the chain of events that proved it was as flawless as the steps of Gauss's theorem.

He prospered after he and Marta were married. In three short years, he was made manager of Cloud's Emporium and just before that, Marta had surprised him with a daughter—surprised him because he was certain of a son. He wasn't inclined to be stubborn about it, however, and when the child put a pudgy little hand up to his cheek in a gesture that was probably caused by reflex or gas pains, he was completely won.

When little Emma reached three, she was incurably addicted to bedtime stories, though only those concerning knights in armor and their ladies fair. Edgar grew to hate the names of Arthur and Galahad, but if he tried to tell a different story, his daughter had

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her own way of stopping him. Rearing back in his arms, she merely shrieked, "Ting Arfur, Ting Arfur!" until she turned blue, at which point Edgar always gave in.

There was no doubt that little Emma had inherited the gene.

IN 1906, old Cloud made Edgar a full partner in the Emporium and just eleven years later, little Emma wrote home from New York City with the shocking news that she was engaged to a doughboy from Brooklyn.

Edgar and Marta rushed East to unmask the scoundrel, praying they would be in time to save Emma's honor.

The scoundrel, when unmasked, was a mechanic with weak eyes and a passion for poetry, who was completely miserable in the infantry. His manners were acceptable and he had enough intelligence to let Edgar beat him thoroughly at cribbage, whereupon Edgar offered to finance the opening of a garage in Greencastle if the young folks would move back there when Jim's hitch in the Army was finished.

"Emma is all we have," said Edgar in his classic style. "It's quite lonesome back home for Mother and me since she's been in the city. We—well, we should like to know that you and, later on, our grandchildren will be settling in a home near us."

Emma blushed and Jim tried to dig the toe of his boot into a crack between the floorboards.

"Besides," added Edgar, becoming aware of Marta's look, "Greencastle is a fine town and right up with the times. I think a garage will do a fine business there."

Jim was inclined to be reluctant, but Emma gave him a sidewise kick and said of course they'd come home and settle. She gave Edgar a big hug and a kiss and he beamed on everybody for the rest of the evening.

A few months later, Jim's weak eyes caused him to pass a colonel without saluting and, within days, he had a medical discharge. Emma and the garage were waiting in Greencastle, so Jim took the first train.

In '19 and in '21, Emma produced grandsons, delighting everyone and especially Edgar. Emma herself was thoroughly puzzled when the boys reached the age for bedtime stories; she discovered that they were not particularly interested in tales of bold knights and fair ladies. She would have been happy to recite the legends of Arthur every night, but the boys, it seemed, preferred even poor poetry to a good, stirring joust.

Edgar privately decided that Jim's poetry gene had proved

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more dominant than his own, which was perhaps just as well.

Though not interested in making a fortune, Edgar nevertheless did well financially, using his knowledge of the '20s as an investment guide. Jim's garage prospered and he opened another, while his father-in-law multiplied his spare cash in the stock market. In July of 1929, Edgar suddenly retrenched for both of them, went bearish and arranged to sell short a number of important shares. The entire family protested that he was losing his mind, but Edgar was firm. By November first, they were amazed, horrified and rich.

The following year, Emma gave Jim the daughter he had wanted. And, within three years, it was apparent to Edgar that tiny Susan carried the gene. From the first time Grandpa experimentally told her a story of the '90s, she wanted no others. Her mother found this also rather difficult to understand, but at least the '90s were in the past, which was better than poetry.

ON a day in 1935, Edgar found himself pondering with a fierce intentness he had not used since 1959, when he built the time machine. Today, August fifth, was his 66th birthday —but it was also the day he was born.

It was impossible *not* to wonder. Forty-two years ago (or twenty-four from now), he had not bothered to think about possible consequences, so strong and simple had been his urge to go back. But today—would he, the father of one and grandfather of three, be wiped out the instant Edgar Evans was born? Or would no baby of that name be born in the tiny Oklahoma town?

He had been born in the morning and when this particular morning passed like any other, Edgar felt considerably better. *Cogito, ergo sum,* he thought. "I think, therefore I am—a comforting philosophy. But what about the baby?"

So Edgar, nervous but understandably curious, sent a discreetly worded wire and learned before long that he had indeed been born on schedule. The more he thought about it, the less reason he could see why it should be otherwise. A baby born in another part of the country had been given the same name as his. There was certainly no traceable relationship. And nearly everyone has a namesake somewhere.

Not wishing to be institutionalized, Edgar had never hinted to anyone, not even Marta, the secret of his past. He had invented a convenient and plausible history, but used it only when necessary, and then sparingly. But now

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he was thinking of his granddaughter, Susan.

Susan carried the gene. At five, she insisted on dressing her dolls in the costumes of forty years ago. She would be 29 and thoroughly unhappy by the time the young Edgar perfected and used his time machine.

So Edgar wrote a letter, sealed it and gave it to his lawyers with instructions that it was to be given to Susan on a certain date in 1959, provided she was still unmarried.

Edgar passed away three years later with a well-bred smile on his face, befitting the first man who ever cheated time. His last statement, phrased as considerately as ever, was the hope that he wasn't causing trouble by dying.

SUSAN, his granddaughter, grew into a pleasingly plump young woman in an age where the ideal seemed to be total emaciation. She was not only single but disillusioned and despairing when the lawyers looked her up and gave her Edgar's letter.

A good part of what Edgar had written sounded like confused mysticism, warnings about upsetting the future and the like, but his instructions were specific enough and she read them as if they were the lost book of *Revelations*.

By the next day, she had flown from San Francisco to New York and gained entry to young Edgar Evans' room by telling his landlady she was a distant relative. She disconnected the scrambler from the time machine and reset the controls to put herself back in 1891. In her haste, she forgot some of Edgar's instructions, with the result that she landed not fittingly costumed, but bare as a bacchante, in the room of a handsome young man from Louisiana.

The young man, whose name was Hare, was too startled to be anything but a Southern gentleman at the time. In less than a month, however, he took her back to Baton Rouge for inspection by his family and, that ordeal successfully weathered, Susan found herself with a husband.

There is no need to follow all of Susan's life, which was happy, sad, unique and filled with minor tragedies and triumphs, like any other life. But Susan had four sons and gave the gene to each of them, and their children received it in turn. Before she had thought it necessary to pass the secret of the machine to Edgar's great-great-grandchildren, Susan died, so the machine was not available to them.

Not that it mattered—knowledge was available, for young Andover Hare had studied elec-

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tronics at M. I. T. In 1962, he built his own time machine, which was a considerable improvement over Edgar's, since it could select place as well as time. Andover contacted his brothers, sisters and cousins, helped them make their arrangements and passed them through to the times they selected. Being a considerate man, he allowed several relatives by marriage to go along on this mass temporal migration.

They did not restrict themselves to the '90s. Some went back to the 1700s, two to the Italian Renaissance, and one adventurous cousin clear to the Second Crusade. Andover himself decided he would like to know Shakespeare and Ben Jonson. He was the last one through the machine and he left a small, efficient detonator connected to it. Andover had Edgar's gene, but not his compunctions.

YES, we owe a lot to Edgar Evans. When Edgar was a grave and unchubby one-year-old, pulling himself up on the furniture, *Gone With the Wind* hit the populace right in the middle of their worries, vague fears and faintly stirring desires to get out of their increasingly complex world. The year was 1936, a year that also saw a period piece movie that was one of the first in the inevitable deluge—*The Great Ziegfeld* drew, as customers, many of the bearers of Edgar's gene, enough to make a profit-conscious Hollywood see mint-green.

The year neighbors searched the wreckage of Edgar's home to pull him from under the body of his mother, hunched in a last protective gesture, was the year that saw American history searched frantically for movie material. It was '39 and *Dodge City* and *Union Pacific* helped thousands of Edgar's descendants forget momentarily the distant rumble of war. Historical novels were also helping to glamorize the past.

By the time Edgar had graduated from school, been rejected by the Army and worked for a time, the cold war was well advanced. Three generations were mind-sick with tensions and fears and doubts—heart-sick with the impossible wish to roll back the years to times of peaceful, neighborly, unfrenzied human living.

Edgar did.

And the next time, in 1959, Susan went back. For most of us, 1959 came only once, the year of the crisis when the missiles had already been launched from both sides before the astonishing "thieves' agreement" was reached and the missiles were aimed into the sea.

There could be nothing but re-

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lief for a few months after that, but then the play on nerves began again, the tensions began their unbearable rise.

In 1962, Susan's grandchildren were funneled like sacks of coal through Andover Hare's machine. There were eighteen of them and a group of their descendants built another machine later the same year. The following March, another group disappeared—a much larger one this time. They spread the gene so widely that most of us bear it today.

It was inevitable that we carry the seed of that desperate desire to escape our own troubled times. And the urge makes living under this doubly grinding pressure more anguished every day.

How many times this week have *you* read or heard a piece of news and wondered how much longer before the final, fatal mushrooms flare? How many times has a video show, a movie, or even just a snapshot brought the swift wish that you could be back there? How many times have the "good old days" crept into your conversation, your thoughts?

AS this account began with Edgar Evans, so it shall end with Benjamin Reeves. Not yet, but soon—it *must* be soon now.

Like all truly wise men, Benjamin Reeves is a modest man. He's tall, stooped a little, and his limbs are attached in that special loose way that makes a man amble rather than walk, sprawl rather than sit. At 50-odd, he looks much more like a friendly janitor than a respected research engineer.

And the gene is particularly dominant in Benjamin.

For eighteen years, he labored in the military vineyard, like so many other scientists, designing computers and control systems for the engineering section of a huge company, and finally heading up a study group in the Dream Department. He liked that job. The dream boys were the ones who sat around and thought about entirely new ways of doing things. Compared to designing, it was like the difference between the creative excitement of composing music and the drudgery of arranging it.

But even while working on deadly machines for the future, Benjamin couldn't stop dreaming about the past, any more than Edgar Evans had.

Then, after eighteen years, Benjamin was fired. The military had asked for a new study on the question of how many enemy missiles might get through the early warning and intercept rings and reach the cities. "What, specifically, can we do to protect our people?"

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When the study was finished, a huge brassbound conference was staged at the lab and everybody was expectant.

"We have a single recommendation," said Benjamin calmly, and they were quiet, for Benjamin and his group were the big brains. "At the earliest warning, tell everybody to run like hell!"

So the lab fired him, though the public statement read that he was "resigning to pursue independent research."

Benjamin was shocked at first, and hurt, but dinner and party invitations came as often as ever from his old associates, and their wives went right on with that ancient game of trying to find the "right" girl for the bachelor friend. He would never mention it, of course, but the girls nowadays seemed too direct and aggressive for him. They lacked that womanly modesty or engaging demureness that girls reportedly had once possessed. He wished—

OFFERS came in from other companies, but Benjamin had money enough for a while and he began experimenting with some ideas. When his lawyer and banker discovered he'd given away two new color TV circuits, however, there was a blow-up and Benjamin found himself incorporated.

It made no difference. He could still experiment as he pleased. He had his many friends and constantly made more. If enough money rolled in to make him moderately wealthy, let the lawyer worry about it. After he came up with the Ben Reeves capacitor in 1961, his wealth was more than moderate. That thumb-sized gadget delivered the power of a hundred storage batteries and was the answer to a thousand engineering problems.

All down the bad years, Benjamin had read the papers and wondered and suffered through the tensions of the nerve war like the rest of us. Perhaps it was a little worse for him, because he knew the classified secrets, knew to the decimal point the percentage of missiles that would get through our defenses. Steadily the urge grew stronger to get out of this world gone suicidally awry.

He had the money and he had the time. An efficient business manager took care of the new plant that produced the Ben Reeves capacitor.

He built his first machine in 1962, a month before Andover Hare took his own near relatives back into time with him. But that wasn't enough for Benjamin. He was a scientist where Andover was a student and Edgar Evans an amateur experimenter. Benjamin couldn't forget the millions who yearned with him.

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For Benjamin, the mere machine wasn't an answer. He went back through the years himself, several times, but always he returned and worked harder. And there came the day, a year ago, when his work shifted suddenly to maps and population indices.

If you live within 40 miles of the most populous cities, you should know that somewhere in that city is a very plain suitcase which is at once an answer to your prayers and to those strange nostalgic desires you've felt. It may be in a rented room or a storage warehouse, or in the attic of one of the many friends Benjamin Reeves has made.

Wherever it is, you're under its influence, thanks to Benjamin's work. And every other day now, in a closed-off room at the Ben Reeves plant, technicians finish assembling another group of strange circuits which goes into another plain suitcase to be sent to yet another city, chosen on the basis of population vs. importance as a target.

The technicians are learning speed. Be thankful for that, if you love your fellow-man as Benjamin does. At first they turned out only one machine a week; soon it will be one a day, then two, four.

Benjamin doesn't go out any more. He's always within hearing of the receiver tuned to the warning networks, within reach of the red button that will someday send out a coded signal.

DID you read about the situation in this morning's papers? It looks like another crisis in the making and maybe this time neither side will back down.

Pray for a year's time, if you're the praying kind.

But whenever the missiles come, Benjamin will press the red button at the first warning. The temporal field lasts only a millisecond and the missiles won't be stopped, of course—but every city with a suitcase will be empty when they strike.

If the crisis holds off for a year, Benjamin figures we'll all go back together, each city and town to a different time, but all before 1900. It's hard to wait even a year when you have the gene gnawing and nagging inside you . . .

Edgar Evans, who started it, couldn't wait. Andover Hare refused to go back alone. Benjamin Reeves, with the same gene, was unable to forget what he told the military—run like hell!—and all the folks like us who couldn't.

So Benjamin found us the ultimate way to run, and to satisfy our dream in the running. Not yet, but soon now.

See you back there!

—ROY HUTCHINS

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the Laxian Key

By ROBERT SHECKLEY

Free enterprise was fine, but AAA Ace happened on something even better — free production!

Illustrated by EMSH

RICHARD Gregor was at his desk in the dusty office of the AAA Ace Interplanetary Decontamination Service. It was almost noon, but Arnold, his partner, hadn't showed up yet. Gregor was just laying out an unusually complicated game of solitaire, when he heard a loud crash in the hall.

The door of AAA Ace opened, and Arnold stuck his head in.

"Banker's hours?" Gregor asked.

"I have just made our fortunes," Arnold said. He threw the door fully open and beckoned dramatically. "Bring it in, boys."

Four sweating workmen lugged in a square black machine the

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size of a baby elephant, and dropped it in the middle of the floor.

"There it is," Arnold said proudly. He paid the workmen, and stood, hands clasped behind his back, eyes half shut, surveying the machine.

Gregor put his cards away with the slow, weary motions of a man who has seen everything. He stood up and walked around the machine. "All right, I give up. What is it?"

"It's a million bucks right in our fists," Arnold said.

"Of course. But *what* is it?"

"It's a Free Producer," Arnold said. He smiled proudly. "I was walking past Joe's Interstellar Junkyard this morning, and there it was, sitting in the window. I picked it up for next to nothing. Joe didn't even know what it was."

"I don't, either," Gregor said. "Do you?"

Arnold was on his hands and knees trying to read the instructions engraved on the front of the machine. Without looking up, he said, "You've heard of the planet Meldge, haven't you?"

Gregor nodded.

MELDGE was a third-rate little planet on the Northern periphery of the Galaxy, some distance from the trade routes. At one time, Meldge had possessed an extremely advanced civilization, made possible by the so-called Meldgen Old Science. The Old Science techniques had been lost ages ago, although an occasional artifact still turned up here and there.

"And this is a product of the Old Science?" Gregor asked.

"Right. It's a Meldgen Free Producer. I doubt if there are more than four or five of them in the entire Universe. They can't be duplicated."

"What does it produce?" Gregor asked.

"How should I know?" Arnold said. "Hand me the Meldge-English dictionary, will you?"

Keeping a stern rein on his patience, Gregor walked to the bookshelf. "You don't know what it produces—"

"Dictionary. Thank you. What does it matter what it produces? It's *free!* This machine grabs energy out of the air, out of space, the Sun, anywhere. You don't have to plug it in, fuel or service it. It runs indefinitely."

Arnold opened the dictionary and started to look up the words on the front of the Producer.

"Free energy—"

"Those scientists were no fools," Arnold said, jotting down his translation on a pocket pad. "The Producer just grabs energy out of the air. So it really doesn't matter what it turns out. We

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can always sell it, and anything we get will be pure profit."

Gregor stared at his dapper little partner, and his long, unhappy face became sadder than ever.

"Arnold," he said, "I'd like to remind you of something. First of all, you are a chemist. I am an ecologist. We know nothing about machinery, and less than nothing about complicated alien machinery."

Arnold nodded absently and turned a dial. The Producer gave a dry gurgle.

"What's more," Gregor said, retreating a few steps, "we are planetary decontaminationists. Remember? We have no reason to—"

The Producer began to cough unevenly.

"Got it now," Arnold said. "It says, 'The Meldge Free Producer, another triumph of Glotten Laboratories. This Producer is indestructible, unbreakable, free of all defects. No Power Hookup is required. To start, press Button One. To stop, use Laxian Key. Your Meldge Free Producer comes with an *Eternal Guarantee against Breakdown*. If defective in any way, please return at once to Glotten Laboratories.' "

"Perhaps I didn't make myself clear," Gregor said. "We are planetary—"

"Don't be stodgy," Arnold said. "Once we get this thing working, we can retire. Here's Button One."

The machine began to clank ominously, then shifted to a steady purr. For long minutes, nothing happened.

"Needs warming up," Arnold said anxiously.

Then, out of an opening at the base of the machine, a gray powder began to pour.

"Probably a waste product," Gregor muttered. But the powder continued to stream over the floor for fifteen minutes.

"Success!" Arnold shouted.

"What is it?" Gregor asked.

"I haven't the faintest idea. I'll have to run some tests." Grinning triumphantly, Arnold scooped some powder into a test tube and hurried over to his desk.

Gregor stood in front of the Producer, watching the gray powder stream out. Finally he said, "Shouldn't we turn it off until we find out what it is?"

"Of course not," Arnold said. "Whatever it is, it must be worth money." He lighted his bunsen burner, filled a test tube with distilled water, and went to work.

GREGOR shrugged his shoulders. He was used to his partner's hair-brained schemes for quick wealth. Ever since they had formed AAA Ace, Arnold

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had been looking for short cuts. The short cuts usually resulted in more work than plain old-fashioned labor, but Arnold was quick to forget that.

Well, Gregor thought, at least it kept things lively. He sat down at his desk and dealt out a complex solitaire pattern.

THERE was silence in the office the next few hours. Arnold worked steadily, adding chemicals, pouring off precipitates, checking the results in several large books he kept on his desk.

Gregor brought in sandwiches and coffee. After eating, he paced up and down, and watched the gray powder tumble steadily out of the machine.

The purr of the Producer grew steadily louder, and the powder flowed in a thicker stream.

An hour after lunch Arnold stood up. "We are in!" he stated.

"What is that stuff?" Gregor asked, wondering if, for once, Arnold had hit upon something.

"That stuff," Arnold said, "is Tangreese." He looked expectantly at Gregor.

"Tangreese, eh?"

"Absolutely."

"Then would you kindly tell me what Tangreese is?" Gregor shouted.

"I thought you knew. Tangreese is the basic food of the Meldgen people. I believe an adult Meldgen consumes several tons a year."

"Food, eh?" Gregor looked at the thick gray powder with new respect. A machine which turned out food steadily, twenty-four hours a day, might be a very good money maker. Especially if the machine never needed servicing and cost nothing to run.

Arnold already had the telephone book open. "Here we are." He dialed a number. "Hello, Interstellar Food Corporation? Let me speak to the president. What? He isn't? The vice-president then. This is important . . . . Channels, eh? All right, here's the story. I am in a position to supply you with an almost unlimited quantity of Tangreese, the basic food of the Meldgen people. That's right. I knew you'd be interested. Yes, of course I'll hold on."

He turned to Gregor, beaming. "These corporations think they can push — yes? Yes, sir, that's right, sir. You *do* handle Tangreese, eh? Fine, splendid!"

Gregor moved closer, trying to hear what was being said on the other end. Arnold pushed him away.

"Price? Well, what is the fair market price? Oh. Well, five dollars a ton isn't much, but I suppose—what? Five *cents* a ton? You're kidding!"

Gregor walked away from the telephone and sank wearily into

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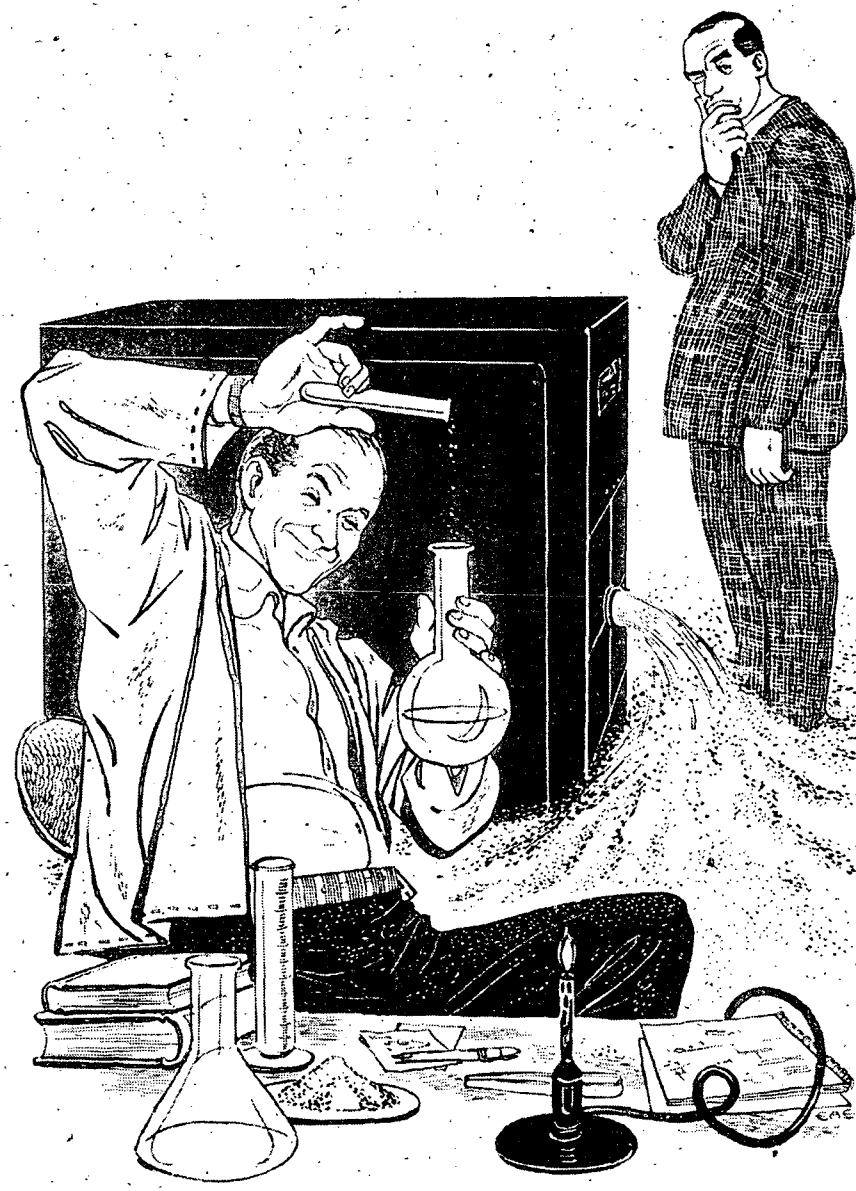

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a chair. Apathetically he listened to Arnold saying, "Yes, yes. Well, I didn't know that. I see. Thanks."

Arnold hung up. "It seems," he said, "there's not much demand for Tangreese on Earth. There are only about fifty Meldgens here, and the cost of transporting it to the Northern periphery is prohibitively high."

Gregor raised both eyebrows and looked at the Producer. Apparently it had hit its stride, for Tangreese was pouring out like water from a high pressure hose. There was gray powder over everything in the room. It was half a foot high in front of the machine.

"Never mind, we'll sell it," Arnold said. "It must be used for something else." He returned to his desk and opened several more large books.

"Shouldn't we turn it off in the meantime?" Gregor asked.

"Certainly not," Arnold said. "It's *free*, don't you understand? It's making money for us."

He plunged into his books. Gregor began to pace the floor, but found it difficult wading through the ankle-deep Tangreese. He slumped into his chair, wondering why he hadn't gone into landscape gardening.

BY early evening, gray dust had filled the room to a depth of several feet. Several pens, pencils, a briefcase and a small filing cabinet were already lost in it, and Gregor was beginning to wonder if the floor would hold the weight. He had to shovel a path to the door, using a wastepaper basket as an improvised spade.

Arnold finally closed his books with a look of weary satisfaction. "There *is* another use."

"What?"

"Tangreese is used as a building material. After a few weeks' exposure to the air it hardens like granite, you know."

"No, I didn't."

"Get a construction company on the telephone. We'll take care of this right now."

Gregor called the Toledo-Mars Construction Company and told a Mr. O'Toole that they were prepared to supply them with an almost unlimited quantity of Tangreese.

"Tangreese, eh?" O'Toole said. "Not too popular as a building material these days. Doesn't hold paint, you know."

"No, I didn't," Gregor admitted unhappily.

"Fact. Tell you what. Tangreese can be eaten by some crazy race. Why don't you—"

"We prefer to sell it as a building material," Gregor said.

"Well, I suppose we can buy it. Always some cheap construction going on. Give you fifteen a ton for it."

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"Dollars?"

"Cents."

"I'll let you know," Gregor said.

His partner nodded sagely when he heard the offer. "That's all right. Say this machine of ours produces ten tons a day, every day, year after year. Let's see . . ." He did some quick figuring with his slide rule. "That's almost five hundred and fifty dollars a year. Won't make us rich, but it'll help pay the rent."

"But we can't leave it here," Gregor said, looking with alarm at the ever-increasing pile of Tangreese.

"Of course not. We'll find a vacant lot in the country and turn it loose. They can haul the stuff away any time they like."

Gregor called O'Toole and said they would be happy to do business.

"All right," O'Toole said. "You know where our plant is. Just truck the stuff in any old time."

"*Us* truck it in? I thought you would—"

"At fifteen cents a ton? No, we're doing you a favor just taking it off your hands. *You* truck it in."

"That's bad," Arnold said, after Gregor had hung up. "The cost of transporting it—"

"Would be far more than fifteen cents a ton," Gregor said. "You'd better shut that thing off until we decide what to do."

Arnold waded up to the Producer. "Let me see," he said. "To turn it off, I use the Laxian Key." He studied the front of the machine.

"Go ahead, turn it off," Gregor said.

"Just a moment."

"Are you going to turn it off or not?"

Arnold straightened up and gave an embarrassed little laugh. "It's not that easy."

"Why not?"

"We need a Laxian Key to turn it off. And we don't seem to have one."

THE next few hours were spent in frantic telephone calls around the country. Gregor and Arnold contacted museums, research institutions, the archeological departments of colleges, and anyone else they could think of. No one had ever seen a Laxian Key, or heard of one being found.

In desperation, Arnold called Joe, the Interstellar Junkman, at his downtown penthouse.

"No, I ain't got no Laxian Key," Joe said. "Why you think I sold you the gadget so cheap?"

They put down the telephone and stared at each other. The Meldgen Free Producer was cheerfully blasting out its stream of worthless powder. Two chairs and a radiator had disappeared

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into it, and the gray Tangreese was approaching desk-top level.

"Nice little wage earner," Gregor said.

"We'll think of something."

"We?"

Arnold returned to his books, and spent the rest of the night searching for another use for Tangreese. Gregor had to shovel the gray powder into the hall, to keep their office from becoming completely submerged.

The morning came, and the Sun gleamed gaily on their windows through a film of gray dust. Arnold stood up and yawned.

"No luck?" Gregor asked.

"I'm afraid not."

Gregor waded out for coffee. When he returned, the building superintendent and two large, red-faced policemen were shouting at Arnold.

"You gotta get every bit of that sand outa my hall!" the super screamed.

"Yeah, and there's an ordinance against operating a factory in a business district," one of the red-faced policemen said.

"This isn't a factory," Gregor explained. "This is a Meldgen Free—"

"I say it's a factory," the policeman said. "And I say you gotta cease operation at once."

"That's our problem," Arnold said. "We can't seem to turn it off."

"Can't turn it off?" The policeman glared at them suspiciously. "You trying to kid me? I say you *gotta* turn it off."

"Officer, I swear to you—"

"Listen, wise guy, I'll be back in an hour. You get that thing turned off and this mess out of here, or I'm giving you a summons." The three men marched out.

Gregor and Arnold looked at each other, then at the Free-Producer. The Tangreese was at desk-top level now, and still coming steadily.

"Damn it all," Arnold said, with a touch of hysteria, "there *must* be a way of working it out. There must be a market! It's free, I tell you. Every bit of this powder is free, free, free!"

"Steady," Gregor said, wearily scratching sand out of his hair.

"Don't you understand? When you get something free, in unlimited quantities, there *has* to be an application for it."

4

THE door opened and a tall, thin man in a dark business suit walked in, holding a complex little gadget in his hand.

"So *here* it is," the man said.

Gregor was struck by a sudden wild thought. "Is that a Laxian Key?" he asked.

"A what key? No, I don't suppose it is," the man said. "It's a drainometer."

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"Oh," Gregor said.

"And it seems to have brought me to the source of the trouble," the man said. "By the way, I'm Mr. Carstairs." He cleared sand from Gregor's desk, took a last reading on his drainometer, and started to fill out a printed form.

"What's all this about?" Arnold asked.

"I'm from the Metropolitan Power Company," Carstairs said. "Starting around noon yesterday, we observed a sudden enormous drain on our facilities. So much power was being siphoned off that we felt it wise to search out just where it was coming from."

"And it's coming from here?" Gregor asked.

"From that machine of yours," Carstairs said. He completed his form, folded it and put it in his pocket. "Thanks for your cooperation. You will be billed for this, of course." With some difficulty he opened the door, then turned and took another look at the Free Producer.

"It must be making something extremely valuable," he said, "to justify the expenditure of so much power. What is it? Platinum dust?"

He smiled, nodded pleasantly, and left.

Gregor turned to Arnold. "Free power, eh?"

"Well," Arnold said, "I guess it just grabs it from the nearest power source."

"So I see. Draws power out of the air, out of space, out of the Sun. And out of the power company's lines, if they're handy."

"So it seems. But the basic principle—"

"To hell with the basic principle!" Gregor shouted. "We can't turn this damned thing off without a Laxian Key, no one's got a Laxian Key, we're submerged in worthless dust which we can't even afford to truck out, and we're probably burning up power like a sun gone nova!"

"There must be a solution," Arnold said sullenly.

Gregor thought sadly of their diminishing bank account. They had made a small profit on their last two jobs, but it was being converted rapidly into gray sand. Still, there was nothing he could do about it. Arnold was his partner. They had gone this far, they might as well go the rest of the way.

Arnold sat down where the desk had been and covered his eyes. There was a loud knock on the door, and angry voices outside.

"Lock the door," Arnold said.

Gregor locked it. Arnold thought for a few moments longer, then stood up.

"All is not lost," he said. "Our fortunes will still be made from this machine."

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"Let's just destroy it," Gregor said. "Drop it in an ocean or something."

"No! I've got it now! Come on, let's get our spaceship warmed up."

THE next few days were hectic ones for AAA Ace. They had to hire men, at exorbitant rates, to clear the building of Tangreese. Then came the problem of getting the machine, still spouting gray dust, into their spaceship. But at last everything was done. The Free Producer sat in the hold, rapidly filling it with Tangreese, and their ship was out of the System and moving fast on overdrive.

"It's only logical," Arnold explained later. "Naturally there's no market for Tangreese on Earth. Therefore there's no use trying to sell it on Earth. But on the planet Meldge—"

"I don't like it," Gregor said.

"It can't fail. It costs too much to transport Trangreese to Meldge. But we're moving our entire factory there. We can pour out a constant stream of the stuff."

"Suppose the market is low?" Gregor asked.

"How low can it get? This stuff is like bread to the Meldgens. It's their basic diet. How can we miss?"

After two weeks in space, Meldge was sighted on their starboard bow. It came none too soon. Tangreese had completely filled the hold. They had sealed it off, but the increasing pressure threatened to burst the sides of the ship. They had to dump tons of it every day, but dumping took time, and there was a loss of heat and air in the process.

So they spiraled into Meldge with every inch of their ship crammed with Tangreese, low on oxygen, and extremely cold.

AS soon as they had landed, a large orange-skinned customs official came on board.

"Welcome," he said. "Seldom do visitors come to our unimportant little planet. Do you expect to stay long?"

"Probably," Arnold said. "We're going to set up a business."

"Excellent!" the official said, smiling happily. "Our planet needs new blood, new enterprises. Might I enquire what business?"

"We're going to sell Tangreese, the basic food of—"

The official's face darkened. "You're going to sell what?"

"Tangreese. We have a Free Producer."

The official pressed a button on a wrist dial. "I am sorry, you must leave at once."

"But we've got passports, clearance papers—"

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"And we have laws. You must blast off immediately, and take your Free Producer with you."

"Now look here," Gregor said. "There's supposed to be free enterprise on this planet."

"Not in the production of Tangreese, there isn't."

Outside, a dozen army tanks rumbled onto the landing field and ringed themselves around the ship. The official backed out the port and started down the ladder.

"Wait!" Gregor cried in desperation. "I suppose you're afraid of unfair competition. Well, take the Free Producer as our gift."

"No!" Arnold shouted.

"Yes! Just dig it out and take it. Feed your poor with it. Just raise a statue to us sometime."

A second row of army tanks appeared. Overhead, antiquated jet planes dipped low over the field.

"Get off this planet!" the official shouted. "Do you really think you can sell Tangreese on Meldge? Look around!"

They looked. The landing field was gray and powdery, and the buildings were the same unpainted gray. Beyond them stretched dull gray fields to a range of low gray mountains.

On all sides, as far as they could see, everything was Tangreese-gray.

"Do you mean," Gregor asked, "that the whole planet—"

"Figure it out for yourself," the official said, backing down the ladder. "The Old Science originated here, and there are always fools who have to tamper with its artifacts. Now get going, and quickly."

Halfway down the ladder he hesitated. "However," he said, "if you ever find a Laxian Key, come back. We'll erect ten statues to you!"

—ROBERT SHECKLEY

Cause: the 1954 International Fantasy Award, highest honor in science fiction, was given to (1) *More Than Human* by Theodore Sturgeon, which appeared in GALAXY as "Baby Is Three;" (2) *The Demolished Man* by Alfred Bester, serialized here under the same title; (3) *The Space Merchants* by Frederik Pohl and C. M. Kornbluth, serialized here as "Gravy Planet."

Effect: during 1954, in its fourth year of existence, GALAXY became the most widely read science fiction magazine in the world!

We would be, to paraphrase Sturgeon's title, less than human if we were not proud of having made a clean sweep of the awards. We would also be blind not to see the connection between quality and growth. We are grateful to these and other authors, and to you, our readers, for having made both goals attainable. Now that we're there, we are not going to sit back and enjoy the view. We have work to do—new worlds to conquer!

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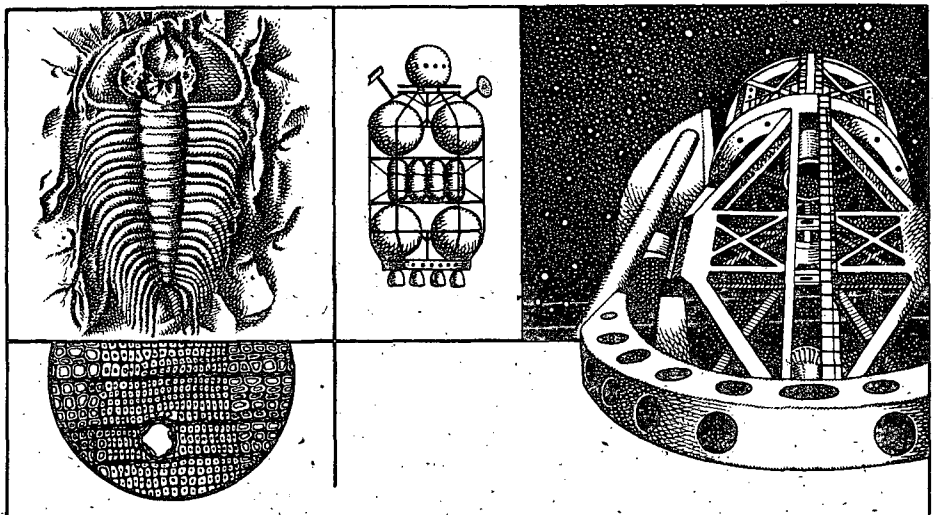

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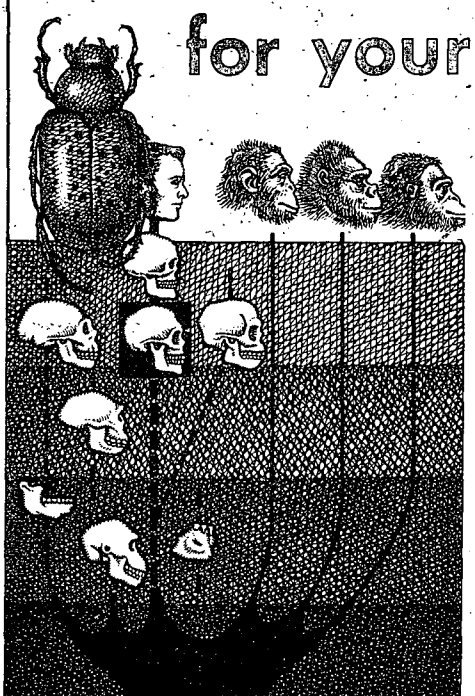
By WILLY LEY



ASTEROID ROUNDUP

THIS year marks the 60th anniversary of an important astronomical discovery which, however, did not then take place. Now this might sound confusing, so let me rephrase it by saying that 60 years have gone by since an important astronomical discovery could have been made. If that is still not quite clear, it has to be said more bluntly by stating that Harvard

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College Observatory missed something important 60 years ago. Two years later, the astronomers at Arequipa, Peru, missed the same chance of amassing some fame. They both photographed Planetoid No. 433 and did not realize what it was that showed on their plates.

Of course, it is conceivable that they may have been somewhat tired of planetoids (or asteroids) by that time. The first one of that swarm of diminutive planets between the orbits of Mars and Jupiter had shown up during the night preceding January 1, 1801. Professor Giuseppe Piazzi, trying to correct a typographical error in a recently published catalogue of fixed stars, had noticed a faint star where there should be none at all. Further observation and a calculation of the orbit by Karl Friedrich Gauss established that it was not a comet, as suspected at first, but a small planet.

It was named Ceres and we now know that it is the largest member of the Asteroid Belt, with a diameter of 480 miles.

IN the late evening hours of March 18, 1802, an amateur astronomer, Wilhelm Matthaus Olbers, M.D. of Bremen, found a second such planet while on the lookout for comets. It was called Pallas and turned out to be the second largest, with a diameter of just a trifle over 300 miles. The same Dr. Olbers discovered one more, Vesta, in 1807, but Vesta was already No. 4, for Harding had found No. 3, Juno, in 1804.

I haven't been able to discover yet just why Dr. Olbers—indubitably the expert in this field, with two discoveries out of a total of four—believed and convinced others that there were only four planetoids. Almost a score of years passed until somebody decided to see whether there mightn't be more.

This skeptical character was, like Dr. Olbers, an amateur, one Mr. M. Hencke of Driesen in Germany. After fifteen years of search, he was able to announce the discovery of No. 5, Astraea, thirty-eight years after the discovery of No. 4, Vesta. Two years later, Mr. Hencke informed the world that he had found No. 6, Hebe.

Then others went to work. When the 50th anniversary of the discovery of Ceres came around, No. 14, named Irene, had just been identified.

So far, the joy of discovery had not been tarnished, but then it began to be dimmed by sheer numbers. In 1870, the number of known and named planetoids had grown to 110. In 1890, it had increased to 300.

It was then that a Dr. Isaac

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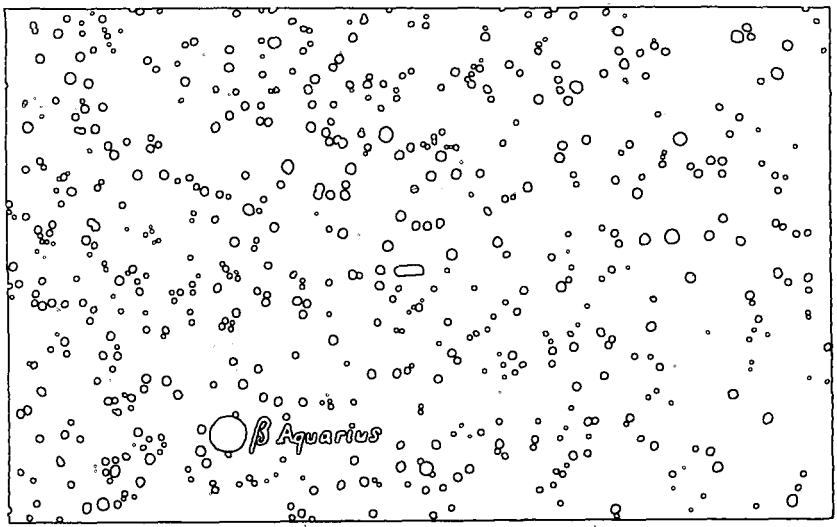

Part of photographic plate taken in August, 1898, at Urania Observatory in Berlin, which led to discovery of Eros.

Roberts made a fateful suggestion. One could keep track of these little bodies best by means of the photographic plate, he said. Astronomers previously had checked the actual appearance of the sky, along the band where the planetoids had to be, against star maps. Anything that showed in the telescope but could not be found on the chart had to be either a comet or a planetoid. It would be simpler, Dr. Roberts said, to photograph these areas, following the apparent movement of the fixed stars with the instrument. The stars would then show up as points, while things that moved—comets and planetoids—would show as short lines.

Professor Max Wolf of Heidelberg was the first to adopt this suggestion. The results were simply disastrous. Yes, you could check on known planetoids in that manner—but you could not avoid discovering dozens of new ones at the same time.

WITHIN the four years from 1891 to 1895, no less than 107 new asteroids were discovered! At the turn of the century, the total number was 559, of which 452 had been numbered and named! Professor Wolf and his assistants had added more than a hundred to the 300 known

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in 1890, Prof. Charlois of Nice had added around 95, and Prof. Palisa of Vienna 83! C. H. F. Peters had found 52 or 53 and many others could boast half a dozen.

Naturally, there were countless duplications. The job of identifying the short lines on countless plates alone assumed almost superhuman proportions.

A rather fast-growing group of astronomers decided that all this was more or less wasted effort and skipped reports on *Kleine Planeten* when reading their professional journals. Others decided that it was more important to keep track of the lower-numbered and larger planetoids and let others worry about identification and establishment of their new discoveries. (A few resolutely decided to study the Sun instead.) And in this general atmosphere of "too much news," there came the evening of August 13, 1898.

The place was the Urania Observatory in Berlin. It had been planned to be "quite some distance" from the city so that the work of the astronomers should not be hampered by city lights. But by 1898, the city was already encroaching on it. By the time of the First World War, when I was old enough to pay attention to such things, the Urania Observatory was deep inside the city and was used for instruction and popular lectures only.

In 1898, the Urania Observatory boasted the biggest telescope —a 12-incher—in all Prussia and the chief astronomer, Dr. G. Witt, had installed some photographic equipment. He must have been short of funds, for the little box that housed the small electric lamp illuminating the spider-web crosshairs had been made by the scientific staff out of a cigar box.

A more serious worry of Dr. Witt was that he did not trust the clockwork mechanism that guided the telescope. This can be corrected manually if somebody sees to it that a fixed star, picked for the purpose, does not leave its assigned place in the field of an auxiliary instrument. This job was done by a young student by the name of Felix Linke.

Linke told me later that there happened to be a heat wave at the time and that they were happy if there was a reason to go to the darkroom, which was the coolest place in the whole observatory, but that the word "cool" applied only by comparison with the rest.

THE program decided upon by Dr. Witt for the night of August 13 to 14 was to track down No. 185, Eunike. Eunike had not been seen for years. But if the old orbit calculation still held

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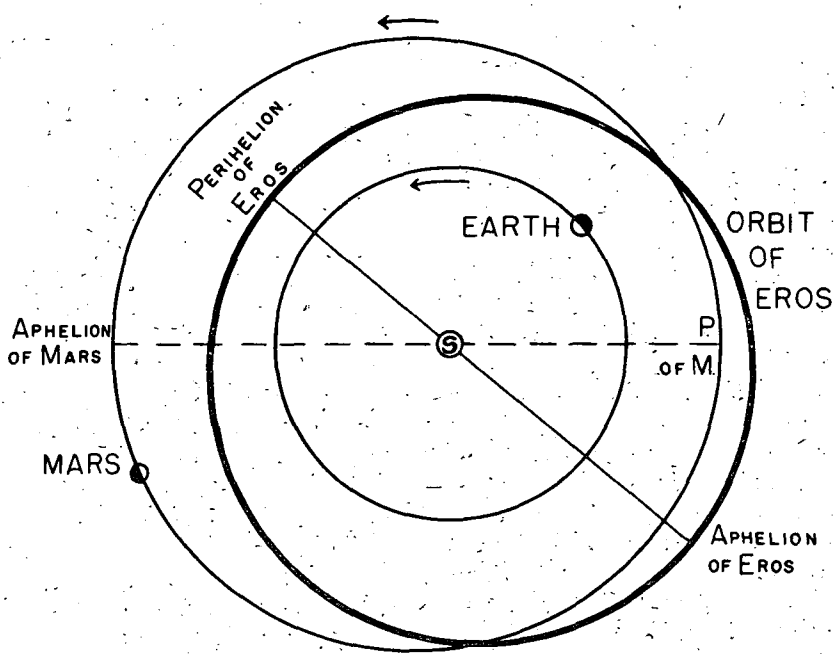

Orbits of Earth, Eros and Mars. Earth passes line from perihelion of Eros to Sun late January every year, some three weeks after passing its own perihelion.

true, Eunike should be in the general vicinity of the fixed star *beta* of the constellation Aquarius.

The photographic instrument was pointed in the proper direction and Linke held it as steady as he could for two hours. Then Dr. Witt and his helper rushed the new plate to the "cool" darkroom and, after it had been racked up to dry, they went home to get as much sleep as the heat would permit. Next day, they went over the plate with a magnifying glass, looking for planetoid tracks.

Eunike was where she was supposed to be, or very nearly so. Another known planetoid had also left its visiting card. But near the star *beta Aquarii,* there was another track of unusual length, measuring 0.4 millimeters on the original plate. Dr. Witt thought at first that this was no track at all, but a flaw in the plate. Then he decided that it was a genuine track and, because of

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its unusual length, it had to be made by a fast-moving body. It could still be a comet, however.

In the evening, the 12-incher went into action for direct observation. The tiny "star" that had made the track the night before could be clearly seen. It was not a comet. Hence it had to be another new planetoid.

The customary wires to other observatories were sent and quite a lot of observations accumulated during the next six days. Then Dr. Berberich, the chief of the Computing Institute, which had been founded especially for keeping track of the minor planets, retired with all the observations of *Object* 1898 *DQ* and began to compute its orbit.

It turned out to be the most unusual orbit of any planetoid thus far. Most of it was between the orbits and Earth and Mars. And its *mean* distance from the Sun was smaller than that of any other.

It was for these reasons that Dr. Witt insisted that 1898 DQ, or planetoid No. 433, should be given a name which, by itself, emphasized that it was a special case. Starting with Ceres, Pallas, Juno and Vesta, all planetoids had been given female names, preferably classical. The new one was to receive a male name.

Dr. Witt selected Eros.

The orbit computed by Dr. Berberich showed that the point closest to the Sun, the perihelion, is only 1.13 astronomical units from the Sun. The point of Earth's orbit closest to the perihelion of Eros is passed by Earth every January 22nd. If it happened that Eros passed its perihelion on that date, or close to it, the distance Earth-to-Eros would be a mere 14 million miles.

This was considerably closer than anything else known at that time (not counting the Moon) because the closest Venus can come is 20 million miles and the closest approach of Mars about 35 million miles.

AT the time of the actual discovery by Dr. Witt, Eros had been near its aphelion and the question was—how long one would have to wait to get a close look?

Eros needed 643 days to go from perihelion to perihelion. It followed that Eros and Earth would be in the same direction, as seen from the Sun, approximately every two years and four months.

But, as a look at the diagram shows, this still implies greatly varying distances. When had Eros been at its perihelion, on or about January 22nd, any year? The answer was disappointing: it had been in January 1894, four and a half years before it was discovered.

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When that date was established, a search of old plates was made and it turned out that Harvard College Observatory had Eros on *seventeen* plates exposed at that time. And Arequipa had photographed it four times in 1896.

The next really close approach of Eros, was not due until 1931. Then there was to be one almost as good in 1938, but for another one as good as the missed one in 1894, one must wait until Eros has completed 46 of its revolutions. This means 81 years, so that Eros will be a minimum distance again in 1975.

But in the meantime, astronomers have put Eros to good use even with somewhat inferior oppositions. The elementary and fundamental yardstick in astronomy is the "astronomical unit"—the distance of Earth from the Sun. By observing Eros, the value of this yardstick has been considerably refined. And as Eros comes inward in the Solar System, it is, of course, being acted on by the gravitational fields of all the inner planets. This fact can be utilized to determine the masses of the inner planets.

In the case of Venus, for example, the mass had to be derived in part from the influence of Venus on Mars. It was, to quote Dr. Paul Herget, one of the paradoxes of astronomy where "we photograph Mars to see how much Venus weighs." Photographing Eros for the same purpose gives better figures. Drs. Eugene Rabe and Gustav Stracke engaged in an elaborate and tedious investigation of the behavior of Eros to establish the masses of the two planets inside the orbit of Earth.

AT this point, somebody is likely to ask about the mass of Eros itself. Well, that's not so simple. The best we can say is that Eros, if dumped on Earth without shattering, would merely become our highest mountain.

Eros rotates around its axis and, while doing so, its brightness changes. This leads to the suspicion that it is not spherical, but of irregular shape.

In 1937, several astronomers published their observations and the conclusion they drew was that Eros might have a shape like a poorly formed brick. Assuming a density of 1.63 times that of water, they calculated that the longest axis of this "brick" was 21.5 miles and that the two shorter axes measured 13.0 and 10.1 miles. The shortest axis is the axis of rotation and the period of rotation was given as five hours and 16 minutes.

All this is still subject to correction and the figures may change somewhat, but it can be

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taken for granted that Eros has an irregular shape that would be impossible for a body of much larger size. It is very simply a huge mountain circling the Sun.

I may add here that its co-discoverer, Linke, has offered the suggestion that Eros may not be a single body, but several small ones rotating around their common center of gravity. It's possible, but not established.

At any event, planetoid No. 433 constitutes one of the strangest and most intriguing astronomical discoveries ever made.

THE SMALLEST "BOMB"

NO weapon, it seems, ever becomes completely and permanently obsolete.

Muzzle-loading cannon, for instance, had almost become proverbial as something thoroughly out of date, useless and very nearly laughable—but then somebody invented the trench mortar and a whole family of muzzle-loading "trench artillery" sprang up during the First World War.

The war rocket was "obsolete" for nearly a century, too — so much so, in fact, that most people didn't even know there had been war rockets once. But then, as you well remember, designers replaced the old and hazardous blackpowder propelling charge with a reliable stick of smokeless power—and the war rocket was back in many different versions and in great quantities.

Photograph of "Lazy Dog" anti-personnel (non-explosive) missile. Cartridge next to it is regulation .30 rifle cartridge.
(Official photograph U.S. Air Force)

The age of the airplane and the blimp looked back on the free balloon as something of the past —especially the free balloon made of paper, like the earliest attempts of the brothers Montgolfier — but then the Japanese recalled the existence of a fast air current moving east over the Pacific Ocean and long-range bombing balloons were made, *many of them of paper!*

As a historic oddity, I might add that even the old fire-arrow staged a small comeback in the Second World War. During the fight for the Italian colonies in East Africa, the Italians quartered their troops in native-built grass huts. Other African natives, under British command, sneaked through the underbrush with bows and fire-arrows and

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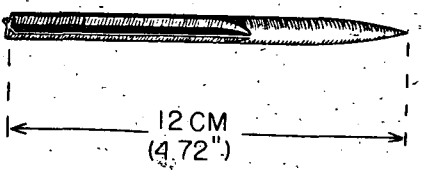
promptly shot them aflame!

All of which is an introduction to the latest weapon of the U. S. Air Force, the "Lazy Dog." It is just a small piece of steel, weighing less than an ounce, and not much over an inch in length. Being finned like a miniature bomb, the Lazy Dog, shoveled overboard from an airplane, will point its nose down and pierce a target like a rifle bullet fired vertically downward. Being solid metal, it won't explode, but it will make holes in tires, gasoline drums and people. Its impact velocity will probably be high enough to go through the top of a car.

A novel idea? Well, no. The French invented it forty years ago, when airplanes were as wobbly as they looked and could carry some 15 or 20 lbs. of payload in addition to the pilot, whose ideal personal build was that of a jockey.

The French "anti-personnel missile," as it would be called now, still lacked aerodynamical refinement and had a shape that justified its name of "airplane arrow." It was eight millimeters (5/16 of an inch) in diameter and weighed 3/4 of an ounce.



"Airplane arrow" as used in Europe during early months of World War I.

The French must have prepared this weapon some time in advance of the First World War, because they used it in their earliest attacks against German ground troops.

Of course it took only weeks until the Germans imitated the weapon. Somebody with precise notions of legality — or a nasty sense of humor—ordered that one of the fins carry an inscription reading *Inv franc Fab allem.* This was not code, but an abbreviation of *Invention francaise Fabrication allemande*—"French invention of German manufacture."

As soon as ground troops on both sides learned to take proper cover — under a car, for example —the use of the airplane arrow was discontinued.

ANY QUESTIONS?

Today I came across a statement in an article by Arthur C. Clarke which I do not quite understand. He says in speaking of weight and inertia that it would be "six times easier to pick up a sledgehammer on the Moon, but

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just as hard to swing it." Would you explain this, please?

Jean De Grazia
597 Hopkins St.
Sewickley, Penna.

This example is intended to illustrate that we, existing under the constant and unvarying pull of Earth's gravity, have come to forget that there is a difference between weight and inertia. To us, a certain weight seems to go with a certain amount of inertia, but actually the two are not the same, which we would realize quickly if we were subjected to a gravitational field of a different strength.

Let's try to approach the problem from another angle. Six pounds of steak have, as anyone knows, a certain amount of food value. They will provide, say, a meal for six hungry people. On the Moon, the same amount of steak would weigh only one pound — but it would still be a meal for six. It is easy to realize, from this example, that we have fallen into the habit of associating a certain number of calories with a certain weight.

Now consider the problem of the sledgehammer. If you pick it up on Earth, you work against Earth's gravity and you have to lift, say, twelve pounds. If you lift the same sledgehammer on the Moon, against the lesser lunar gravity, you have to lift what to early muscles feels like two pounds. But if you swing it, on Earth or on the Moon, you have to accelerate its *mass*. That would be the same in either case, since accelerating the same mass needs the same force regardless of the gravity present.

Are there any other materials besides lead and concrete that are used for radiation shielding? If so, what radiations (meaning alpha, beta or gamma rays and neutrons) do they stop?

James Reeve
7005—5th Avenue
Los Angeles 43, Calif.

The materials most used in atomic laboratories and power plants are, as you say, concrete and lead. Concrete shielding is customary for permanent installations, while lead, in the form of bricks, is used for temporary setups.

Actually, any kind of matter could be used for shielding against any kind of radiations. It is merely a question of volume. Slabs of slate may not be a good shield, but a mountain of slate is. A fishtank full of water is poor protection, but a large lake is a different story.

The reasons for using concrete or lead are, therefore,

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purely practical reasons. Concrete is needed in large quantities, but it is both cheap and available. Lead is used because of its high density, so that the volume (though not the weight) of matter to be moved around is comparatively small.

Would you please advise me about the following concept: Assume that the Earth is the only body in space. I contend that it would then be impossible for any rocket to escape from the Earth. Inasmuch as the gravitational field of the Earth extends to infinity-and the speed of the rocket must be finite, it would always fall back sooner or later because the pull of the Earth will continually subtract velocity from the rocket. Right or wrong?

David Richardson
1803 *Rhodes St.*
Madison, Illinois

Wrong. But this is one of the so-called "instructive errors" that deserve discussion and clarification.

To begin with, the assumption that the Earth is the only body in space is not necessary. Even as things are, the gravitational field of the Earth extends theoretically to infinity. But it grows weaker all the time with distance and the requirement is simply that the kinetic energy of the moving (and no longer burning) rocket is greater than the force of the gravitational field at any point along its trajectory.

To explain this statement, let's look at the motion of a body falling toward Earth from infinity. At a distance of 100,000 miles from the surface, this body will have a certain velocity. At the distance of 10,000 miles, it will have a certain and obviously higher velocity. At the distance of 1,000 miles, it will have a still higher velocity. And it will have the highest velocity it can ever have at the moment of impact.

If a rocket going the other way is to reach infinity, it must have a velocity that is somewhat (only very slightly) higher than the corresponding velocities of the falling body. The impact velocity would be just a shade below seven miles per second.

Hence if the rocket near the surface of the Earth reached seven miles per second, it would go to infinity, for it would, at all points along the trajectory, have a velocity slightly higher than that of the falling body.

Earth's gravitational pull would eventually slow it down —after a sufficiently long time, the motion might be as little as three inches per century! But

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Earth's gravitational pull could never bring it to a standstill.

For this reason, this velocity of seven miles per second has been named "escaped velocity" by rocket men. Astronomers still use the older but equivalent term of "parabolic velocity."

Might not differences in electric potential be one of the hazards of space travel? A body leaving Earth at zero potential (relative to the Earth) might find that other planetary bodies have electric potentials higher or lower than Terra.

H. Sheppard
24 Chatterton Blvd.
West Hill, Ontario

This question has come up in space travel discussions for some time, but unfortunately there is no satisfactory answer. The main question is, of course, whether the electric potential of another planet—for example, Mars — is actually different from that of Earth. We don't know and physicists have no way at present, short of an actual visit, to decide this question. The attitude of engineers is somewhat more positive. They feel that if such differences exist, they'll do something about it.

Dr. Wernher von Braun stated flatly: "This cannot be considered a hazard to space travel at all. The capacity of a space vehicle entering the atmosphere of another planet is extremely small and the number of coulombs which must travel into the ship or out of it to make its electric potential equal to that of the surrounding environment is very small. Any brush discharger can easily take care of this."

A slightly different situation would exist if the target planet happens to be without (or virtually without) an atmosphere, as, for instance, the Moon. At first glance, it might seem as if the ship, with its possibly different potential, would make contact suddenly. But on an airless planet, the ship would have to land with rocket motors working, balancing down on an exhaust blast. Since this blast consists of partly ionized gases, it would automatically perform the job of a "grounding" cable.

To sum up: We don't know whether this "hazard" actually exists, but we have every reason to believe that, if it does, it won't be a hazard at all.

—WILLY LEY

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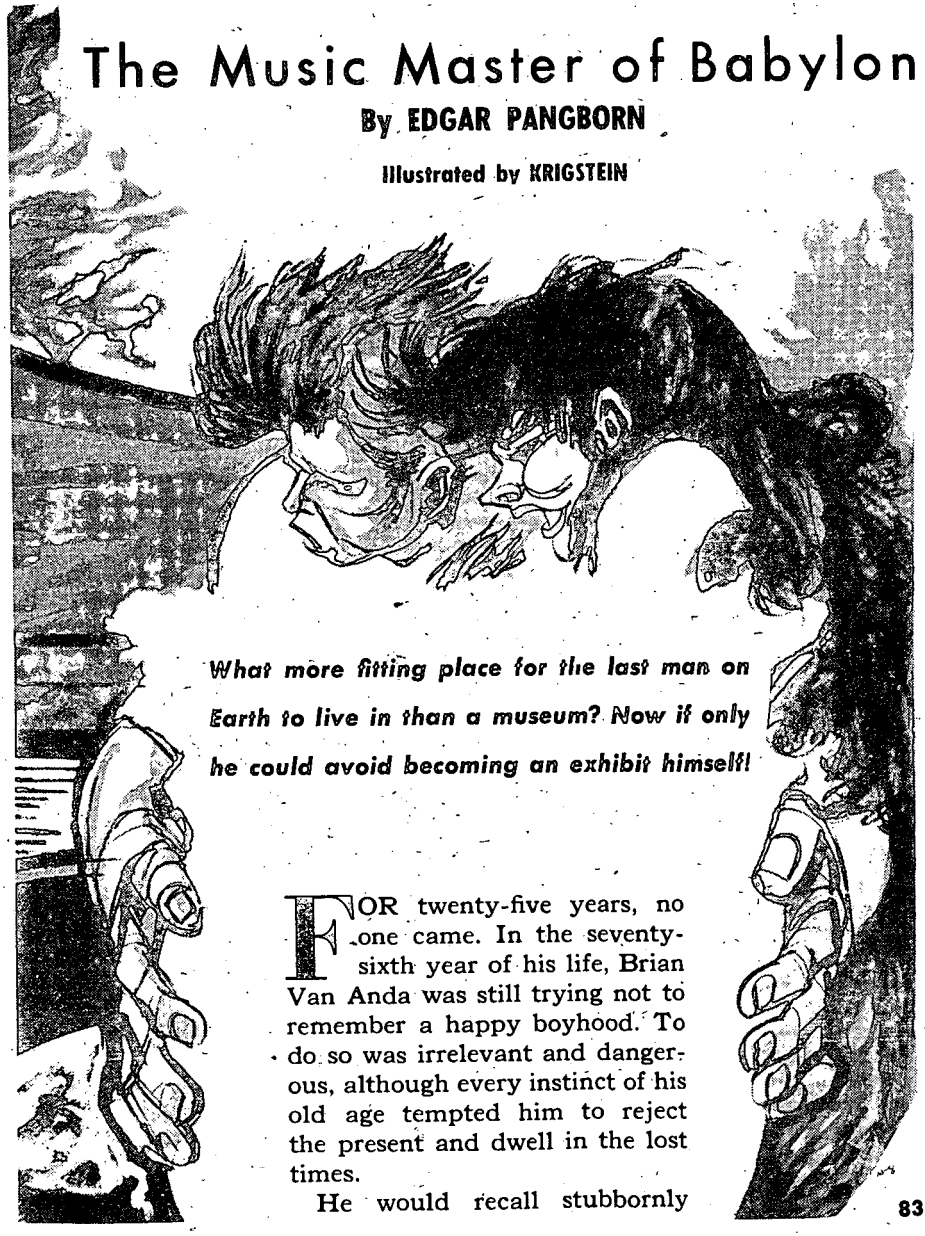
The Music Master of Babylon

By EDGAR PANGBORN

Illustrated by KRIGSTEIN



What more fitting place for the last man on Earth to live in than a museum? Now if only he could avoid becoming an exhibit himself!

FOR twenty-five years, no one came. In the seventy-sixth year of his life, Brian Van Anda was still trying not to remember a happy boyhood. To do so was irrelevant and dangerous, although every instinct of his old age tempted him to reject the present and dwell in the lost times.

He would recall stubbornly

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that the present year, for example, was 2096; that he had been born in 2020, seven years after the close of the Civil War, fifty years before the Final War, twenty-five years before the departure of the First Interstellar. (It had never returned, nor had the Second Interstellar. They might be still wandering, trifles of Man-made stardust.) He would recall his place of birth, New Boston, the fine, planned city far inland from the ancient metropolis that the rising sea had reclaimed after the earthquake of 1994.

Such things, places and dates, were factual props, useful when Brian wanted to impose an external order on the vagueness of his immediate existence. He tried to make sure they became no more than that—to shut away the colors, the poignant sounds, the parks and the playgrounds of New Boston, the known faces (many of them loved), and the later years when he had briefly known a curious intoxication called fame.

It was not necessarily better or wiser to reject those memories, but it was safer, and nowadays Brian was often sufficiently tired, sufficiently conscious of his growing weakness and lonely unimportance, to crave safety as a meadow mouse often craves a burrow.

HE tied his canoe to the massive window that for many years had been a port and a doorway. Lounging there with a suspended sense of time, he was hardly aware that he was listening. In a way, all the twenty-five years had been a listening. He watched Earth's patient star sink toward the rim of the forest on the Palisades. At this hour, it was, sometimes possible, if the Sun-crimsoned water lay still, to cease grieving too much at the greater stillness.

There was scattered human life elsewhere, he knew—probably a great deal of it. After twenty-five years alone, that, too, often seemed almost irrelevant. At other times than mild evenings, hushed noons or mornings empty of human commotion, Brian might lapse into anger, fight the calm by yelling, resent the swift dying of his echoes. Such moods were brief. A kind of humor remained in him, not to be ruined by sorrow.

He remembered how, ten months or possibly ten years ago, he had encountered a box turtle in a forest clearing, and had shouted at it: "*They went thataway!*" The turtle's rigidly comic face, fixed by nature in a caricature of startled disapproval, had seemed to point up some truth or other. Brian had hunkered down on the moss and laughed

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uproariously—until he observed that some of the laughter was weeping.

Today had been rather good. He had killed a deer on the Palisades, and with bow and arrow, thus saving a bullet. Not that he needed to practice such economy. He might live, he supposed, another decade or so at the most. His rifles were in good condition and his hoarded ammunition would easily outlast him. So would the stock of canned and dried food stuffed away in his living quarters. But there was satisfaction in primitive effort and no compulsion to analyze the why of it.

The stored food was more important than the ammunition. A time would come soon enough when he no longer had strength for hunting. He would lose the inclination for trips to cross the river. He would yield to such laziness or timidity for days, then weeks. Some time, when it became months or years, he might find himself too feeble to risk climbing the cliff wall into the forest. He would have the good sense then, he hoped, to destroy the canoe, thus making of his weakness a necessity.

THERE were books. There was the Hall of Music on the next floor above the water, probably safe from its lessening encroachment. To secure fresh water, he need only keep track of the tides, for the Hudson had cleaned itself and now rolled down sweet from the lonely, uncorrupted hills. His decline could be comfortable. He had provided for it and planned it. Yet gazing now across the sleepy water, seeing a broad-winged hawk circle in freedom above the forest, Brian was aware of the old thought moving in him:

"If I could hear voices—just once, if I could hear human voices . . ."

The Museum of Human History, with the Hall of Music on what Brian thought of as the second floor, should also outlast his requirements. In the flooded lower floor and basement, the work of slow destruction must be going on. Here and there, the unhurried waters could find their way to steel and make rust of it, for the waterproofing of the concrete was nearly a hundred years old. But it ought to be good for another century or two.

Nowadays the ocean was mild. There were moderate tides, winds no longer destructive. For the last six years, there had been no more of the heavy storms out of the south. In the same period, Brian had noted a rise in the water level of a mere nine inches. The window-sill, his port, was six inches above high-tide mark now.

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Perhaps Earth was settling into a new, amiable mood. The climate had become delightful, about like what Brian remembered from a visit to southern Virginia in his childhood.

The last earthquake had come in 2082—a large one, Brian guessed, but its center could not have been close to the rock of Manhattan. The Museum had only shivered and shrugged; it had survived much worse than that, half a dozen times since 1994. After the tremor, a tall wave had thundered in from the south. Its force, like that of others, had mostly been dissipated against the barrier of tumbled rock and steel at the southern end of the submerged island—an undersea dam, Man-made though not Man-intended — and when it reached the Museum, it did no more than smash the southern windows in the Hall of Music, which earlier waves had not been able to reach. Then it passed on up the river, enfeebled. The windows of the lower floor had all been broken long before that.

AFTER the earthquake of '82, Brian had spent a month boarding up all the openings on the south side of the Hall of Music—after all, it was home—with lumber painfully ferried from mainland ruins. That year, he had been sixty-two years old and not moving with the ease of youth: a rough job. He had deliberately left cracks and knotholes. Sunlight sifted through in narrow beams, like the bars of dusty gold Brian could remember in a hayloft at his uncle's farm in Vermont. It was quite pleasant.

The Museum had been built in 2003. Manhattan, strangely enough, had never been bombed, although, in the Civil War, two of the type called "small fission" had fallen on the Brooklyn and Jersey sides—so Brian recalled from the jolly history books that had informed his adolescence that war was definitely a thing of the past.

By the time of the final War, in 2070, the sea, gorged on the melting ice caps, had removed Manhattan Island from history. Everything left standing above the waters south of the Museum had been knocked flat by the tornados of 2057 and 2064. A few blobs of rock still marked where Central Park and Mount Morris Park had been, but they were not significant. Where Long Island once rose, there was a troubled area of shoals and tiny islands, probably a useful barrier of protection for the receding shore of Connecticut.

Men had yielded the great city inch by inch, then foot by foot; a full mile in 2047, saying: "The flood years have passed their

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peak and a return to normal is expected."

Brian sometimes felt a twinge of sympathy for the Neanderthal experts who must have told each other to expect a return to normal after the Cro-Magnons stopped drifting in.

In 2057, the island of Manhattan had to be yielded altogether. New York City, half-new, half-ancient, sprawled stubborn and enormous upstream, on both sides of a river not done with its anger. But the Museum stood. Aided by sunken rubble of others of its kind, aided also by men because they still had time to love it, the Museum stood, and might for a long time yet—weather permitting.

It covered an acre of ground well north of 125th Street, rising a modest fifteen stories, its foundation secure in that layer of rock which mimics eternity. It deserved its name: here men had brought samples of everything, literally everything known in the course of humanity since prehistory. It was, within human limits, definitive. In its way, considering how much the erosion of time must always steal from scholars, it was perfect.

NO one had felt anything unnatural in the refusal of the Directors of the Museum to move the collection after the Museum weathered the storm of 2057. Instead, ordinary people, more than a thousand of them, donated money so that a mighty abutment could be built around the ground floor, a new entrance designed on the north side of the second. The abutment survived the greater tornado of 2064 without damage, although, during those seven years, the sea had risen another eight feet in its old ever-new game of making monkeys out of the wise.

It was left for Brian Van Anda alone, in 2079, to see the waters slide quietly over the abutment, opening the lower regions for the use of fishes and the more secret water-dwellers who like shelter and privacy. In the '90s, Brian suspected the presence of an octopus or two in the vast vague territory which had once been parking lot, heating plant, storage space, air-raid shelter, etc. He couldn't prove it; it just seemed like a comfortable place for an octopus.

In 2070, plans were under consideration for building a new causeway to the Museum from the still expanding city in the north. In 2070, also, the final War began and ended.

When Brian Van Anda came down the river late in 2071, a refugee from certain unfamiliar types of savagery, the Museum was empty of the living. He had

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spent many days in exhaustive exploration of the building. He did that systematically, toiling at last up to the Directors' meeting room on the top floor. There he observed how they must have been holding a conference at the very time when a new gas was tried out over New York in the north, in a final effort to persuade the Western Federation that Man is the servant of the state and that the end justifies the means.

Too bad, Brian sometimes thought, that he would never know exactly what happened to the Asian Empire. In the little paratroop-invaded area called the Soviet of North America, from which Brian had fled in '71, the official doctrine was that the Asian Empire had won the war and that the saviors of humanity would be flying in any day to take over. Brian had doubted this out loud, and then stolen a boat and got away safely at night.

Up in the meeting room, Brian had seen how that new neurotoxin had been no respecter of persons. An easy death, though—no pain. He observed also how some things survive. The Museum, for instance, was virtually unharmed.

BRIAN had often recalled those months in the meeting room as a sort of island in time, like the first hour of discovering that he could play Beethoven; or like the curiously cherished, more than life-size half-hour back there in Newburg, in 2071, when he had briefly met and spoken with an incredibly old man, Abraham Brown, President of the Western Federation at the time of the Civil War. Brown, with a loved world in almost total ruin around him, had spoken pleasantly of small things—of chrysanthemums that would soon be blooming in the front yard of the house where he lived with friends, of a piano recital by Van Anda at Ithaca, in 2067, which the old man remembered with warm enthusiasm.

Yes, the Museum Directors had died easily, and now the old innocent bodies would be quite decent. There were no vermin in the Museum. The doorways and floors were tight, the upper windows unbroken.

One of the white-haired men had a Ming vase on his desk. He had not dropped from his chair, but looked as if he had fallen comfortably asleep in front of the vase with his head on his arms. Brian had left the vase untouched, but had taken one other thing, moved by some stirring of his own never-certain philosophy and knowing that he would not return to this room, ever.

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Another Director had been opening a wall cabinet when he fell; the small key lay near his fingers. Plainly their discussion had not been concerned only with war, perhaps not at all with war—after all, there were other topics. The Ming vase would have had a part in it. Brian wished he could know what the old man had meant to choose from the cabinet. Sometimes, even now, he dreamed of conversations with that man, in which the Director told him the whole truth about that and other matters; but what was certainty in sleep was in the morning gone like childhood.

For himself, Brian had taken a little image of rock-hard clay, blackened, two-faced, male and female. Prehistoric, or at any rate wholly primitive, unsophisticated, meaningful like the blameless motion of an animal in sunlight, Brian had said: "With your permission, gentlemen." He had closed the cabinet and then, softly, the outer door.

"I'm old," Brian said to the red evening. "Old, a little foolish, talk aloud to myself. I'll have some Mozart before supper."

HE transferred the fresh venison from the canoe to a small raft hitched inside the window. He had selected only choice pieces, as much as he could cook and eat in the few days before it spoiled, leaving the rest for the wolves or any other forest scavengers who might need it. There was a rope strung from the window to the marble steps that led to the next floor—home.

It had not been possible to save much from the submerged area, for its treasure was mostly heavy statuary. Through the still water, as he pulled the raft along the rope, the Moses of Michaelangelo gazed up at him in tranquility. Other faces watched him. Most of them watched infinity. There were white hands that occasionally borrowed gentle motion from ripples made by the raft.

"I got a deer, Moses," said Brian Van Anda, smiling down in companionship, losing track of time. He carried his juicy burden up the stairway.

His living quarters had once been a cloakroom for Museum attendants. Four close walls gave it a sense of security. A ventilating shaft now served as a chimney for the wood stove Brian had salvaged from a mainland farmhouse. The door could be tightly locked; there were no windows. You do not want windows in a cave.

Outside was the Hall of Music, an entire floor of the Museum, containing an example of every musical instrument that was known or could be reconstructed

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in the 21st century. The library of scores and recordings lacked nothing — except electricity to play the recordings. A few might still be made to sound on a spring-wound phonograph, but Brian had not bothered with it for years; the springs were rusted.

He sometimes took out the orchestra and chamber music scores, to read at random. Once his mind had been able to furnish ensembles, orchestras, choirs of a sort, but lately the ability had weakened. He remembered a day, possibly a year ago, when his memory refused to give him the sound of oboe and clarinet in unison. He had wandered, peevish, distressed, unreasonably alarmed, among the racks and cases of woodwinds in the collection, knowing that even if the reeds were still good, he could not play them. He had never mastered any instrument except the piano.

"But even if I could play them," he muttered, now tolerantly amused, "I couldn't do it in unison, could I? Ah, the things that will bother a man!"

BRIAN recalled—it was probably that same day—opening a chest of double basses. There was an old three-stringer in the group, probably from the early 19th century, a trifle fatter than its modern companions. Brian

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touched its middle string in an idle caress, not intending to make it sound, but it had done so. When in use, it would have been tuned to D; time had slackened the heavy murmur to A or something near it. That had throbbed in the silent room with a sense of finality, a sound such as a programmatic composer—Tschaikowsky, say, or some other in the nadir of torment — might have used as a tonal symbol for the breaking of a heart. It stayed in the air a long time, other instruments whispering a dim response.

"All right, gentlemen," said Brian. "That was your A." He had closed the case, not laughing.

Out in the main part of the hall, a place of honor was given to what may have been the oldest of all instruments, a seven-note marimba of phonolitic schist discovered in Indo-China in the 20th century and thought to be at least 5,000 years of age. The xylophone-type rack was modern; for twenty-five years, Brian had obeyed a compulsion to keep it clear of cobwebs. Sometimes he touched the singing stones, not for amusement, but because there was an obscure comfort in it. Unconcerned with time, they answered even to the light tap of a fingernail.

On the west side of the Hall of Music, a rather long walk from Brian's cave, was a small auditorium. Lectures, recitals, chamber music concerts had been given there in the old days. The pleasant room held a twelve-foot concert grand, made by Steinway in 2043, probably the finest of the many pianos in the Hall of Music.

Brian had done his best to preserve this, setting aside a day each month for the prayerful tuning of it, robbing other pianos in the Museum to provide a reserve supply of strings, oiled and sealed up against rust. No dirt ever collected on the Steinway. When not in use, it was covered with stitched - together sheets. To remove the cover was a sober ritual; Brian always washed his hands with fanatical care before touching the keys.

Some years ago, he had developed the habit of locking the auditorium doors before he played. Even with the doors locked, he would not glance toward the vista of empty seats—not knowing, nor caring much, whether this inhibition had grown from a Stone Age fear of seeing someone there or from a flat, reasonable certainty that no one could be.

THE habit might have started (he could not remember precisely) away back in the year 2076, when so many bodies had

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drifted down from the north on the ebb tides. Full horror had somehow been lacking in the sight of all that floating death. Perhaps it was because Brian had earlier had his fill of horrors; or perhaps, in 2076, he already felt so divorced from his own kind that what happened to them was like the photograph of a war in a distant country.

Some of the bodies had bobbed quite near the Museum. Most of them had the gaping wounds of primitive warfare, but some were oddly discolored—a new pestilence? So there was (or had been) more trouble up there in what was (or had been) the Soviet of North America, a self-styled "nation" that took in east New York State and some of New England.

Yes, that was probably the year when he had started locking the doors between his private concerts and an empty world.

He dumped the venison in his cave. He scrubbed his hands, blue-veined now, but still tough, still knowing. Mozart, he thought, and walked — not with much pleasure of anticipation, but more like one externally driven—through the enormous hall that was so full and yet so empty, growing dim with evening, with dust, with age, with loneliness. Music should not be silent.

When the piano was uncovered, Brian delayed. He flexed his hands unnecessarily. He fussed with the candelabrum on the wall, lighting three candles, then blowing out two for economy. He admitted presently that he did not want the serene clarity of Mozart at all right now. This evening, the darkness of 2070 was closer than he had felt it for a long time. It would never have occurred to Mozart, Brian thought, that a world could die. Beethoven could have entertained the idea soberly enough; Chopin probably; even Brahms. Mozart would surely have dismissed it as somebody's bad dream, in poor taste.

Andrew Carr, who lived and died in the latter half of the 20th century, had endured the idea from the beginning of his childhood. The date of Hiroshima was 1945; Carr was born in 1951; the inexhaustible wealth of his music was written between 1969, when he was eighteen, and 1984, when he died in an Egyptian jail from injuries received in a street brawl.

"If not Mozart," said Brian to his idle hands, "there is always The Project."

PLAYING Carr's last sonata as it should be played—as Carr was supposed to have said he couldn't play it himself—Brian had been thinking of that as The Project for many years. It had

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begun long before the war, at the time of his triumphs in a civilized world which had been warmly appreciative of the polished interpretive artist, although no more awake than any other age to the creative one. Back there in the undestroyed society, Brian had proposed to program that sonata in the company of works that were older but no greater, and play it—yes, beyond his best, so that even critics would begin to see its importance.

He had never done it, had never felt that he had entered into the sonata and learned the depth of it. Now, when there was none to hear or care, unless maybe the harmless brown spiders in the corners of the auditorium had a taste for music, there was still The Project.

"*I* hear," Brian said. "*I* care, and with myself as audience I want to hear it once as it ought to be, a final statement for a world that couldn't live and yet was too good to die."

Technically, of course, he had it. The athletic demands Carr made on the performer were tremendous, but, given technique, there was nothing impossible about them. Anyone capable of concert work could at least play the notes at the required tempos. And any reasonably shrewd pianist could keep track of the dynamics, saving strength for the shattering finale in spite of the thunderings that must come before. Brian had heard the sonata played by others two or three times in the old days—competently. Competency was not enough.

For example, what about the third movement, that mad Scherzo, and the five tiny interludes of sweet quiet scattered through its plunging fury? They were not alike. Related, perhaps, but each one demanded a new climate of heart and mind—tenderness, regret, simple relaxation. Flowers on a flood—no. Warm window-lights in a storm—no. The innocence of an unknowing child in a bombed city—no, not really. Something of all those, but much more, too.

What of the second movement, the Largo, where, in a way, the pattern was reversed, the midnight introspection interrupted by moments of anger, or longing, or despair like that of an angel beating his wings against a prison of glass?

It was, throughout, a work in which something of Carr's life and Carr's temperament had to come into you, whether you dared welcome it or not; otherwise, your playing was no more than a bumbling reproduction of notes on a page.

Carr's life was not for the contemplation of the timid.

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THE details were superficially well known. The biographies themselves were like musical notation, meaningless without interpretation and insight.

Carr had been a drunken roarer, a young devil-god with such a consuming hunger for life that he had choked to death on it. His friends hated him for the way he drained their lives, loving them to distraction and always loving his work a little more. His enemies must have had times of helplessly adoring him, if only because of an impossible transparent honesty that made him more and less than human.

A rugged Australian, not tall but built like a hero, a face all forehead and jaw and glowing hyperthyroid eyes. He wept only when he was angry, the biographers said. In one minute of talk, they said, he might shift from gutter obscenity to some extreme of altruistic tenderness, and from that to a philosophical comment of the coldest intelligence.

He passed his childhood on a sheep farm, ran away to sea on a freighter at thirteen, studied like a slave in London with a single-minded desperation, even through the horrors of the Pandemic of 1972. He was married twice and twice divorced. He killed a man in an imbecile quarrel on the New Orleans docks, and wrote his First Symphony while he was in jail for that. And he died of stab wounds in a Cairo jail. It all had relevancy. Relevant or not, if the sonata was in your mind, so was the life.

You had to remember also that Andrew Carr was the last of civilization's great composers. No one in the 21st century approached him—they ignored his explorations and carved cherry-stones. He belonged to no school, unless you wanted to imagine a school of music beginning with Bach, taking in perhaps a dozen along the way, and ending with Carr himself. His work was a summary and, in the light of the year 2070, a completion.

Brian was certain he could play the first movement of the sonata acceptably. Technically, it was not revolutionary, but closely loyal to the ancient sonata form. Carr had even written in a conventional double-bar for a repeat of the entire opening statement, something that made late 20th century critics sneer with great satisfaction. It never occurred to them that Carr expected a performer to use his head.

The bright-sorrowful second movement, unfashionably long, with its strange pauses, unforeseen recapitulations, outbursts of savage change—that was where Brian's troubles began. It did not help him to be old, remem-

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bering the inner storms of twenty-five years ago and more.

AS the single candle fluttered, Brian realized that he had forgotten to lock the door. That troubled him, but he did not rise from the piano chair. He chided himself instead for the foolish neuroses of aloneness—what could it matter?

He shut his eyes. The sonata had long ago been memorized; printed copies were safe somewhere in the library. He played the opening of the first movement, as far as the double-bar; opened his eyes to the friendly black and white of clean keys and played the repetition with new light, new emphasis. Better than usual, he thought.

Now that soaring modulation into A Major that only Carr would have wanted just there in just that sudden way, like the abrupt happening upon shining fields. On toward the climax—*I am playing it, I think*—through the intricate revelations of development and recapitulation. And the conclusion; lingering, half-humorous, not unlike a Beethoven ending, but with a questioning that was all Andrew Carr.

After that—

"No more tonight," said Brian aloud. "Some night, though . . . Not competent right now, my friend. Fear's a many-aspect thing. But The Project . . ."

He replaced the cover on the Steinway and blew out the candle. He had brought no torch, long use having taught his feet every inch of the short journey. It was quite dark. The never-opened western windows of the auditorium were dirty, most of the dirt on the outside, crusted wind-blow salt.

In this partial darkness, something was wrong.

At first Brian could find no source for the faint light, the dim orange with a hint of motion that had no right to be here. He peered into the gloom of the auditorium, fixed his eyes on the oblong of blacker shadow that was the door he meant to use, but it told him nothing.

The windows, of course. He had almost forgotten there were any. The light, hardly deserving the name, was coming through them. But sunset was surely well past; he had been here a long time, delaying and brooding before he played. Sunset should not flicker.

So there was some kind of fire on the mainland. There had been no thunderstorm. How could fire start, over there where no one ever came?

HE stumbled a few times, swearing petulantly, locating the doorway again and grop-

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ing through it into the Hall of Music. The windows out here were just as dirty; no use trying to see through them. There must have been a time when he had enjoyed looking through them.

He stood shivering in the marble silence, trying to remember.

He could not. Time was a gradual eternal dying. Time was a long growth of dirt and ocean salt, sealing in, covering over forever.

He stumbled for his cave, hurrying now, and lit two candles. He left one by the cold stove and used the other to light his way down the stairs to his raft. Once down there, he blew it out, afraid. The room a candle makes in the darkness is a vulnerable room. With no walls, it closes in a blindness. He pulled the raft by the guide-rope, gently, for fear of noise.

He found his canoe tied as he had left it. He poked his white head slowly beyond the sill, staring west.

Merely a bonfire gleaming, reddening the blackness of the cliff.

Brian knew the spot, a ledge almost at water level. At one end of it was the troublesome path he used in climbing up to the forest. Usable driftwood was often there, the supply renewed by the high tides.

"No," Brian said. "Oh, no . . ."

Unable to accept, or believe, or not believe, he drew his head in, resting his forehead on the coldness of the sill, waiting for dizziness to pass, reason to return. Then rather calm, he once more leaned out over the sill. The fire still shone and was therefore not a disordered dream of old age, but it was dying to a dull rose of embers.

HE wondered a little about time. The Museum clocks and watches had stopped long ago; Brian had ceased to want them. A sliver of moon was hanging over the water to the east. He ought to be able to remember the phases, deduce the approximate time from that. But his mind was too tired or distraught to give him the necessary data. Maybe it was somewhere around midnight.

He climbed on the sill and, with grunting effort, lifted the canoe over it to the motionless water inside. Wasted energy, he decided, as soon as that struggle was over. That fire had been lit before daylight passed; whoever lit it would have seen the canoe, might even have been watching Brian himself come home from his hunting. The canoe's disappearance in the night would only rouse further curiosity. But Brian was too exhausted to lift it back.

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WHY assume that the maker of the bonfire was necessarily hostile? Might be good company.

Might be . . .

Brian pulled his raft through the darkness, secured it at the stairway, and groped back to his cave.

He then locked the door. The venison was waiting, the sight and smell of it making him suddenly ravenous. He lit a small fire in the stove, one that he hoped would not be still sending smoke from the ventilator shaft when morning came. He cooked the meat crudely and wolfed it down, all enjoyment gone at the first mouthful.

He was shocked then to discover the dirtiness of his white beard. He hadn't given himself a real bath in — weeks? He searched for scissors and spent an absent-minded while trimming the beard back to shortness. He ought to take some soap—valuable stuff—down to Moses' room and wash.

Clothes, too. People probably still wore them. He had worn none for years, except for sandals and a clout and a carrying satchel for his trips to the mainland. He had enjoyed the freedom at first, and especially the discovery in his rugged fifties that he did not need clothes even for the soft winters, except perhaps a light covering when he slept. Then almost total nakedness had become so natural, it required no thought at all. But the owner of that bonfire—

He checked his rifles. The .22 automatic, an Army model from the 2040s, was the best. The tiny bullets carried a paralytic poison: graze a man's finger and he was painlessly dead in three minutes. Effective range, with telescopic sights, three kilometers; weight, a scant five pounds.

He sat a long time cuddling that triumph of military science, listening for sounds that did not come, wondering often about the unknowable passage of night toward day. Would it be two o'clock.

He wished he could have seen the Satellite, renamed in his mind the Midnight Star, but when he was down there at his port, he had not once looked up at the night sky. Delicate and beautiful, bearing its everlasting freight of men who must have been dead now for twenty-five years and who would be dead a very long time—well, it was better than a clock, Brian often thought, if you happened to look at the midnight sky at the right time of the month when the Man-made star could catch the moonlight. But he had not seen it tonight.

Three o'clock?

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AT some time during the long dark, he put the rifle away on the floor. With studied, self-conscious contempt for his own weakness, he strode out noisily into the Hall of Music with a fresh-lit candle. This same bravado, he knew, might dissolve at the first alien noise. While it lasted, though, it was invigorating.

The windows were still black with night. As if the candle-flame had found its own way, Brian was standing by the ancient marimba in the main hall, the light slanting carelessly away from his thin, high-veined hand. Nearby, on a small table, sat the Stone Age clay image he had brought long ago from the Directors' meeting room on the fifteenth floor. It startled him.

He remembered quite clearly how he himself had placed it there, obeying a half-humorous whim: the image and the singing stones were both magnificently older than history, so why shouldn't they live together? Whenever he dusted the marimba, he dusted the image respectfully and its pedestal. It would not have taken much urging from the impulses of a lonely mind, he supposed, to make him place offerings before it and bow down—winking first, of course, to indicate that rituals suitable to two aging gentlemen did not have to be sensible in order to be good.

But now the clay face, recapitulating eternity, startled him. Possibly some flicker of the

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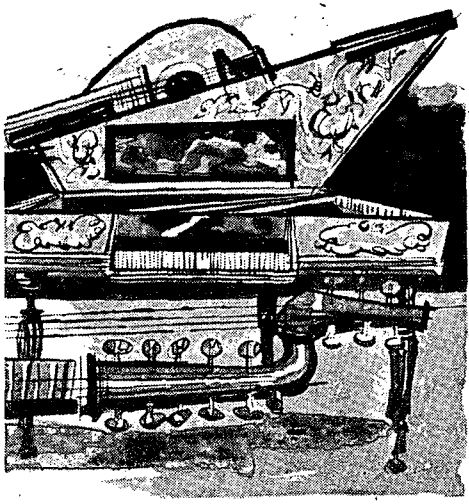

candle had given it a new mimicry of life.

Though worn with antiquity, it was not deformed. The chipped places were simple honorable scars. The two faces stared mildly from the single head; there were plain stylized lines to represent folded hands, equally artless marks of sex on either side. That was all. The maker might have intended it to be a child's toy or a god.

A wooden hammer of modern make rested on the marimba. Softly, Brian tapped a few of the stones. He struck the shrillest one harder, waking many slow-dying overtones, and laid the hammer down, listening until the last murmur perished and a drop of hot wax hurt his thumb.

He returned to his cave and blew out the candle, thinking of the door, not caring that he had, in irrational bravado, left it unlocked. Face down, he rolled his head and clenched his fingers into his pallet, seeking in pain and finding at last the relief of stormy helpless weeping in the total dark.

Then he slept.

THEY looked timid. The evidence of it was in their tense squatting pose, not in what the feeble light allowed Brian to see of their faces, which were as blank as rock. Hunched down just inside the open doorway of the cloakroom-cave, a dim morning grayness from the Hall of Music behind them, they were ready for flight. Brian's intelligence warned his body to stay motionless, for readiness for flight could also be readiness for attack. He studied them, lowering his eyelids to a slit. On his pallet well inside the cave, he must be in deep shadow.

They were aware of him, though, keenly aware.

They were very young, perhaps sixteen or seventeen years old, firm-muscled, the man slim but heavy in the shoulders, the girl a fully developed woman. They were dressed alike: loincloths of some coarse dull fabric and moccasins that might be

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deerhide. Their hair grew nearly to the shoulders and was cut off carelessly there, but they were evidently in the habit of combing it. They appeared to be clean. Their complexion, so far as Brian could guess it in the meager light, was the brown of a heavy tan.

With no immediate awareness of emotion, he decided they were beautiful, and then, within his own poised, perilous silence, Brian reminded himself that the young are always beautiful.

Softly—Brian saw no motion of her lips—the woman muttered: "He wake."

A twitch of the man's hand was probably meant to warn her to be quiet. His other hand clutched the shaft of a javelin with a metal blade. Brian saw that the blade had once belonged to a breadknife; it was polished and shining, lashed to a peeled stick. The javelin trailed, ready for use at a flick of the young man's arm. Brian opened his eyes plainly.

Deliberately, he sighed. "Good morning."

The youth said: "Good morning, sa."

"Where do you come from?"

"Millstone." The young man spoke automatically, but then his facial rigidity dissolved into amazement and some kind of distress. He glanced at his companion, who giggled uneasily.

"The old man pretends to not know," she said, and smiled, and seemed to be waiting for the young man's permission to go on speaking. He did not give it, but she continued: "Sa, the old ones of Millstone are dead." She thrust her hand out and down, flat, a picture of finality, adding with nervous haste: "As the Old Man knows. He who told us to call him Jonas, she who told us to call her Abigail, they are dead. They are still-without-moving for six days. Then we do the burial as they told us. As the Old Man knows."

"But I don't know!" said Brian, and sat up on his pallet, too quickly, startling them. But their motion was backward, readiness for flight, not for aggression. "Millstone? Where is Millstone?"

BOTH looked wholly bewildered, then dismayed. They stood up with splendid animal grace, stepping backward out of the cave, the girl whispering in the man's ear. Brian caught only two words: "Is angry . . ."

He jumped up. "Don't go! Please don't go!" He followed them out of the cave, slowly now, aware that he might well be an object of terror in the half-dark, aware of his gaunt, graceless age and dirty hacked-off beard. Almost involuntarily, he adopted something of the flat stilted quality of their speech: "I will not

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hurt you. Do not go."

They halted. The girl smiled dubiously.

The man said: "We need old ones. They die. He who told us to call him Jonas said, many days in the boat, not with the sun-path, he said, across the sun-path, he said, keeping land on the left hand. We need old ones to speak the—to speak . . . The Old Man is angry?"

"No, I am not angry. I am never angry." Brian's mind groped, certain of nothing. No one had come for twenty-five years. Only twenty-five? Millstone?

There was red-gold on the dirty eastern windows of the Hall of Music, a light becoming softness as it slanted down, touching the long rows of cases, the warm brown of an antique spinet, the arrogant clean gold of a 20th century harp, the dull gray of singing stones five thousand years old and a clay face much older than that.

"Millstone?" Brian pointed southwest in inquiry.

The girl nodded, pleased and not at all surprised that he should know, watching him now with a squirrel's stiff curiosity. Hadn't there once been a Millstone River in or near Princeton? He thought he remembered that it emptied into the Raritan Canal. There was some moderately high ground around there. Islands now, no doubt, or—well, perhaps they would tell him.

"There were old people in Millstone," he said, trying for gentle dignity, "and they died. So now you need old ones to take their place."

The girl nodded vigorously. A glance at the young man was full of shyness, possessiveness, maybe some amusement. "He who told us to call him Jonas said no marriage can be without the words of Abraham."

"Abr—" Brian checked himself. If this was religion, it would not do to speak the name Abraham with a rising inflection, at least not until he knew what it stood for. "I have been for a long time—" He checked himself again. A man old, ugly and strange enough to be sacred should never stoop to explain anything.

THEY were standing by the seven-stone marimba. His hand dropped, his thumbnail clicking by accident against the deepest stone and waking a murmur. The children drew back alarmed.

Brian smiled. "Don't be afraid." He tapped the other stones lightly. "It is only music. It will not hurt you." He was silent a while, and they were patient and respectful, waiting for more light. He asked carefully: "He who told

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you to call him Jonas, he taught you all the things you know?"

"All things," the boy said, and the girl nodded quickly, so that the soft brownness of her hair tumbled about her face, and she pushed it back in a small human motion as old as the clay image.

"Do you know how old you are?"

They looked blank. Then the girl said: "Oh, summers!" She held up both hands with spread fingers, then one hand. "Three-fives. As the Old Man knows."

"I am very old," said Brian. "I know many things. But sometimes I wish to forget, and sometimes I wish to hear what others know, even though I may know it myself."

They looked uncomprehending and greatly impressed. Brian felt a smile on his face and wondered why it should be there. They were nice children. Born ten years after the death of a world. Or twenty perhaps. *I think I am seventy-six, but did I drop a decade somewhere and never notice the damn thing?*

"He who told you to call him Jonas, he taught you all that you know about Abraham?"

At sound of the name, both of them made swift circular motions, first at the forehead, then at the breast.

"He taught us all things," the young man said. "He, and she who told us to call her Abigail. The hours to rise, to pray, to wash, to eat. The laws for hunting, and I know the Abraham-words for that: Sol-Amra, I take this for my need."

Brian felt lost again, dismally lost, and looked down to the grave clay faces of the image for counsel, and found none. "They who told you to call them Jonas and Abigail, they were the only old ones who lived with you?"

Again that look of bewilderment. "The only ones, sa," the young man said. "As the Old Man knows."

I could never persuade them that, being old, I know very nearly nothing.

BRIAN straightened to his full gaunt height. The young people were not tall; though stiff and worn with age, Brian knew he was still a bonily overpowering creature. Once, among men, he had mildly enjoyed being more than life-size.

As a shield for the lonely, frightened thing that was his mind, he put on a phony sternness: "I wish to examine you about Millstone and your knowledge of Abraham. How many others are living at Millstone?"

"Two fives, sa," said the boy promptly, "and I who may be called Jonason and this one we may call Paula. Two fives and

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two. We are the biggest, we two. The others are only children, but he we call Jimi has killed his deer. He sees after them now while we go across the sun-path."

Under Brian's questioning, more of the story came, haltingly, obscured by the young man's conviction that the Old Man already knew everything. Some time, probably in the middle 2080s, Jonas and Abigail (whoever they were) had come on a group of twelve wild children who were keeping alive somehow in a ruined town where their elders had all died. Jonas and Abigail had brought them all to an island they called Millstone.

Jonas and Abigail had come originally from "up across the sun-path"—the boy seemed to mean north—and they had been very old, which might mean anything between thirty and ninety. in teaching the children primitive means of survival, Jonas and Abigail had brought off a brilliant success: Jonason and Paula were well fed, shining with health and cleanliness and the strength of wildness, and their speech had not been learned from the ignorant. Its pronunciation faintly suggested New England, so far as Brian could detect any local accent at all.

"Did they teach you reading and writing?" he asked, and made writing motions on the flat of his palm, which the two watched in vague alarm.

The boy asked: "What is that?"

"Never mind." He thought: *I could quarrel with some of your theories, Mister whom I may call Jonas.* "Well, tell me now what they taught you of Abraham."

Both made again that circular motion at forehead and breast, and the young man said with the stiffness of recitation: "Abraham was the Son of Heaven, who died that we might live."

THE girl, her obligations discharged with the religious gesture, tapped the marimba shyly, fascinated, and drew her finger back sharply, smiling up at Brian in apology for her naughtiness.

"He taught the laws, the everlasting truth of all time," the boy recited, almost gabbling, "and was slain on the wheel at Nuber by the infidels. Therefore, since he died for us, we look up across the sun-path when we pray to Abraham Brown, who will come again."

Abraham *Brown*?

But—

But I knew him, Brian thought, stunned. *I met him once. Nuber? Newburg, the temporary capital of the Soviet of—oh, the hell with that. Met him in 2071—he was 102 years old then, could still walk, speak clearly, even remem-*

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ber an unimportant concert of mine from years before. I could have picked him up in one hand, but nobody was ever more alive. The wheel?

"And when did he die, boy?" Brian asked.

Jonason moved fingers helplessly, embarrassed. "Long, long ago." He glanced up hopefully. "A thousand years? I think he who told us to call him Jonas did not ever teach us that."

"I see. Never mind." *Oh, my good Doctor—after all! Artist, statesman, student of ethics, philosopher—you said that if men knew themselves, they would have the beginning of wisdom. Your best teacher was Socrates. Well you knew it, and now look what's happened!*

Jonas and Abigail—some visionary pair, Brian supposed, maybe cracking up under the ghastliness of those years. Admirers of Brown, perhaps. Shocked, probably, away from the religions of the 21st century, which had all failed to stop the horrors, nevertheless they needed one, or were convinced that the children did—so they created one. There must later have been some dizzying pride of creation in it, possibly wholehearted belief in themselves, too, as they found the children accepting it, building a ritual life around it.

It was impossible, Brian thought, that Jonas and Abigail could have met the living Abraham Brown. As anyone must who faces the limitations of human intelligence, Brown had accepted mysteries, but he did not make them. He was wholly without intellectual arrogance. No one could have talked with him five minutes without hearing him say tranquilly: "I don't know."

The wheel at Nuber?

The *wheel*?

BRIAN realized he could never learn how Brown had actually died. Even if he had the strength and courage to go back north—no, at seventy-six (eighty-six?), one can hardly make a fresh start in the study of history. Not without the patience of Abraham Brown himself, who had probably been doing just that when the wheel—

An awed question from the girl pulled Brian from a black pit of abstraction: "What is that?" She was pointing to the clay image in its dusty sunlight.

Brian spoke vaguely, almost deaf to his own words until they were past recovering: "That? It is very old. Very old and very sacred." She nodded, round-eyed, and stepped back a pace or two. "And that—that was all they taught you of Abraham Brown?"

Astonished, the boy asked: "Is it not enough?"

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There is always The Project. "Why, perhaps."

"We know all the prayers, Old Man."

"Yes, I'm sure you do."

"The Old Man will come with us."

"Eh?" *There is always The Project.* "Come with you?"

"We look for old ones," said the young man. There was a new note in his voice, and the note was impatience. "We traveled many days, up across the sun-path. We want you to speak the Abraham-words for marriage. The Old Ones said we must not mate as the animals do without the words. We want—"

"Marry, of course," said Brian feebly, rubbing his great, long-fingered hand across his face so that the words were blurred and dull. "Naturally. Beget. Replenish the Earth. I'm tired. I don't know any Abraham-words for marriage. Go on and marry. Try again. Try—"

"But the Old Ones said—"

"Wait!" Brian cried. "Wait! Let me think. Did he—he who told you to call him Jonas, did he teach you anything about the world as it was in the old days, before you were born?"

"Before? The Old Man makes fun of us."

"No, no." And since he now had to fight down physical fear as well as confusion, Brian spoke more harshly than he intended: "Answer my question! What do you know of the old days? I was a young man once, do you understand? As young as you. What do you know about the world I lived in?"

JONASON laughed. There was new-born doubt in him as well as anger, stiffening his shoulders, narrowing his innocent gray eyes. "There was always the world," he said, "ever since God made it a thousand years ago."

"Was there? I was a musician. Do you know what a musician is?"

The young man shook his head, watching Brian — too alertly, watching his hands, aware of him in a new way, no longer humble. Paula sensed the tension and did not like it.

She said worriedly, politely: "We forget some of the things they taught us, sa. They were Old Ones. Most of the days, they were away from us in—places where we were not to go, praying. Old Ones are always praying."

"I will hear this Old Man pray," said Jonason. The butt of the javelin rested against Jonason's foot, the blade swaying from side to side. A wrong word, any trifle, Brian knew, could make them decide in an instant that he was evil and not sacred. Their

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religion would certainly require a devil.

He thought also: *Merely one of the many ways of dying. It would be swift, which is always a consideration.*

"Certainly you may hear me pray," said Brian abruptly. "Come this way." In a fluctuating despair, he knew that he must not become angry, as a climber stumbling at the edge of a cliff might order himself not to be careless. "Come this way. My prayers—I'll show you. I'll show you what I did when I was a young man in a world you never knew."

He stalked across the Hall of Music, not looking behind, but his back sensed every glint of light on that bread-knife javelin.

"Come this way!" he shouted. "Come in here!" He flung open the door of the auditorium and strode up on the platform. "Sit down over there and be quiet!"

They did, he thought—he could not look at them. He knew he was muttering, too, between his noisy outbursts, as he snatched the cover off the Steinway and raised the lid, muttering bits and fragments from old times, and from the new times.

"They went thataway. Oh, Mr. Van Anda, it just simply goes right through me; I can't express it. Madam, such was my intention—or, as Brahms is supposed to have said on a slightly different subject, any ass knows that. Brio, Rubato and Schmalz went to sea in a—Jonason, Paula, this is a piano. It will not hurt you. Sit there, be quiet, listen."

He found calm. *Now if ever, now when I have living proof that human nature (some sort of human nature) is continuing—surely now, if ever, The Project—*

WITH the sudden authority that was natural to him, Andrew Carr took over. In the stupendous opening chords of the introduction, Brian very nearly forgot his audience. Not quite, though. The youngsters had sat down out there in the dusty region where none but ghosts had lingered for twenty-five years or more. The piano's first sound brought them to their feet. Brian played through the first four bars, piling the chords like mountains, then held the last one with the pedal and waved his right hand at Jonason and Paula in a furious downward motion.

He thought they understood. He thought he saw them sit down again, but he could pay them scant attention now, for the sonata was coming alive under his fingers, waking, growing, rejoicing.

He did not forget the youngsters again. They were important, terrifying, too important, at the

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fringe of awareness. But he could not look at them any more. He shut his eyes.

He had never played like this in the flood of his prime, in the old days, before great audiences that loved him. Never.

His eyes were still closed, holding him secure in a secret world that was not all darkness, when he ended the first movement, paused very briefly, and moved on with complete assurance to explore the depth and height of the second. This was a true statement at last. This was Andrew Carr; he lived, even if, after this late morning, he might never live again.

And now the third, the storm and the wrath, the interludes of calm, the anger, denials, affirmations. *Was there anything he didn't know, this heir of three centuries who died in jail?*

Without hesitation, without any awareness of self, of age or pain or danger or loss, Brian was entering on the broad reaches of the last movement when he opened his eyes.

The youngsters were gone.

Well, he thought, it's too big. It frightened them away. He could visualize them, stealing out with backward looks of panic. Incomprehensible thunder. But he could not think much about them now. Not while Andrew Carr was with him. He played on with the same assurance, the same joyful sense of victory. Savages—let them go, with leave and good will.

SOME external sound was faintly troubling him, something that must have begun under cover of these rising, pealing octave passages—storm waves, each higher than the last, until it seemed that even a superhuman swimmer must be exhausted. An undefinable alien noise, a kind of humming.

Brian shook his head peevishly, shutting it away. It couldn't matter, at least not now. Everything was here, in the beautiful labors his hands still had to do. The waves were growing more quiet, settling, subsiding, and now he must play those curious arpeggios which he had never quite understood—but, of course, he understood them at last. Rip them out of the piano like showers of sparks, like distant lightnings moving farther off across a world that could never be at rest.

The final theme. Why, it was a variation—and how was it that he had never realized it?—a variation on a theme of Brahms, from the German Requiem. Quite plain, quite simple, and Brahms would have approved. Still it was rather strange, Brian thought, that he had never made the identification before in spite of all

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his study. Well, he knew it now.

Blessed are the dead . . .

Yes, Brian thought, but something more remained, and he searched for it, proudly certain of discovering it, through the mighty unfolding of the finale. No hurrying, no crashing impatience any more, but a moving through time with no fear of time, through radiance and darkness with no fear of either. Andrew Carr was happy, the light of the Sun on his shoulders.

That they may rest from their labors, and their works do follow after them.

Brian stood up, swaying and out of breath. So the music was over, and the young savages were gone, and somewhere a jangling, humming confusion was filling the Hall of Music, distant, but entering with violence even here, now that the piano was silent. Brian moved stiffly out of the auditorium, more or less knowing what he would find.

The noise was immense, the unchecked overtones of the marimba fuming and quivering as the high ceiling of the Hall of Music caught and twisted them, flung them back against the answering strings of harps and pianos and violins, the sulky membranes of drums, the nervous brass of cymbals.

The girl was playing it. Really playing it.

BRIAN laughed once, softly, in the shadows, and was not heard. She had hit on a most primeval rhythm natural for children or savages and needed nothing else, hammering it out swiftly on one stone and then the next, wanting no rest or variation.

The boy was dancing, slapping his feet, pounding his chest, thrusting out his javelin in perfect time to the clamor, edging up to his companion, grimacing, drawing back to return. Neither was laughing or close to laughter. Their faces were savage-solemn, downright grim with the excitement, the innocent lust, as spontaneous as the drumming of partridges.

It was a while before they saw Brian in the shadows.

The girl dropped the hammer. The boy froze briefly, his javelin raised, then jerked his head slightly at Paula, who snatched at something. Only moments later did Brian realize that she had taken the clay image before she fled. Jonason covered her retreat, stepping backward, his face blank with fear and readiness, javelin poised. So swiftly, so easily, by grace of a few wrong words and Steinway's best, had a Sacred Old One become a Bad Old One, an evil spirit.

They were gone, down the stairway, leaving the echo of Brian's voice crying: "Don't go!

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Please don't go! I beg you!"

Brian followed them unwillingly. It was a measure of his unwillingness that moments passed before he was at the bottom of the stairway looking across the shut-in water to his raft, which they had used and left at the window-sill port. Brian had never been a good swimmer; he was too dizzy now and short of breath to attempt to reach it.

He clutched the rope and hitched himself, panting, hand over hand, to the window, collapsing there a while until he found strength to scramble into his canoe and grope for the paddle. The youngsters' canoe was already far off, heading up the river, the boy paddling with deep powerful strokes.

Up the river, of course. They had to find the right kind of Old Ones. Up across the sun-path.

Brian dug his blade in the quiet water. For a time, his rugged ancient muscles were willing. There was sap in them yet. Perhaps he was gaining slightly.

He shouted hugely: "Bring back my two-faced god! Bring it back! It's not yours. *It's not yours!*"

THEY must have heard his voice booming at them. At any rate, the girl looked back once. The boy, intent on his effort, did not.

Brian roared: "Bring back my god! I want my little god!"

He was not gaining on them. They had a mission, after all. They had to find the right kind of Old Ones. But damn it, Brian thought, my world has some rights, hasn't it? *We'll see about this.*

He lifted the paddle like a spear and flung it, knowing even before his shoulder winced how absurd the gesture was. The youngsters were so far away that even an arrow from a bow might not have reached them.

The paddle splashed in the water. Not far away: a small infinity. It swung about to the will of the river, the heavy end pointing obediently downstream. It nuzzled companionably against a gray-faced chunk of driftwood, diverting it, so that presently the driftwood floated into Brian's reach.

He caught it, and flung it toward the paddle, hoping it might fall on the other side and send the paddle near him. It fell short, and in his oddly painless extremity, Brian was not surprised, but merely watched the gray driftwood floating and bobbing along beside him with an irritation that was part friendliness, for it suggested the face of a music critic he had met in—New Boston, was it? Denver? London? He couldn't remember.

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"Why," he said aloud, detachedly observing the passage of his canoe beyond the broad morning shadow of the Museum of Human History, "I seem to have made sure to die."

"Mr. Van Anda has abundantly demonstrated a mastery of the instrument and of the—" *You acid fraud, go play solfeggio on your linotype! Don't bother me!* —"and of the literature which could, without exaggeration, be termed beyond technique. He is one of those rare interpreters who at the last analysis—"

"I can't swim it, you know," said Brian.

"—have so deeply submerged, dedicated themselves, that they might truly be said to have become one with—" Gaining on the canoe, the gray-faced chip moved tranquilly, placidly approving, toward the open sea. And with a final remnant of strength, Brian inched forward to the bow of the canoe and gathered the full force of his lungs to shout up the river: "Go in peace!"

They could not have heard him. They were too far away and a new morning wind was blowing, fresh and sweet, out of the northwest.

—EDGAR PANGBORN

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Up for Renewal

By LUCIUS DANIEL

Illustrated by DOCKTOR

"I'd give a year off my life to . . ." Idle talk now, but it was ghastly reality to Kent!

HOWARD Kent looked at his young and beautiful wife and felt the weight of the years rest on his shoulders. In her eyes he saw his heavily lined face and sagging, stooped shoulders.

They stood just inside the long, narrow reception room of the Human Rejuvenation Plant. Potted palms and formal chairs reminded one of a Human Disposal unit.

"I have a confession to make, darling," he said.

"Oh, no, Howard. Not now. I take for granted you've done the usual things in your youth."

"But . . ."

"And we needn't have hurried so, as you can see. Now we'll probably have to wait hours in this perfectly dismal place."

She looked as young and fresh as he looked old and dusty, he thought, so out of place in this kind of establishment.

He had always loved small women. Leah was small and vivacious and dressed a year ahead of styles. No matter what happened, he'd never regret having married her.

"But this is something I should have told you before," he said.

She put her hand on his arm. "I've been perfectly happy these past six months. Whatever it was, I forgive you."

"It's not that. I'm talking about my age. I didn't think you'd mar-

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ry me if you knew how old I really was. I put off telling you and figured you'd see my birth certificate at the wedding ceremony."

"I never even looked at the silly old thing."

"Well, darling, I looked at yours and felt a little guilty in marrying a young girl of twenty-three. But the fact is I'm sixty-five. I've been rejuvenated before."

"I rather suspected it when you started aging so suddenly last week," she said. "Before that you didn't look a day over thirty. But it doesn't matter."

"It's worse than that, Leah." His face worked convulsively. "I've been here twice before. This is my third trip."

"I'm too modern to act shocked, Howard. If you didn't want to tell me before, dear, it's perfectly all right."

"Look, darling!" Perspiration stood on his forehead. "You don't seem to understand. But then you never could add or subtract. Now listen carefully. Each trip clips five years off your life span."

"Everyone knows that, of course. But it's better to be young . . ."

"It's better to be alive than dead," he said harshly.

"But your doctors have given you a longevity span to the age of ninety."

"Suppose it was eighty, instead of ninety?"

"Oh, dear, you worry too much," she said. "Doctors don't make such mistakes."

"They can't give me a guarantee. You see, three of my ancestors died from accidents. The prediction of ninety years is based on the assumption that they would have lived a normal lifetime."

"They make few guarantees. You know, all of you men are such babies at a time like this."

"Yes, but if it *is* eighty—then, I'll come out not a rejuvenated man, but just a handful of dust."

"Oh, that can't happen."

"LOOK at it this way." He paused a moment while taking in her youthful appearance. "From now on I wouldn't look much older. Just a little grayer and perhaps more stooped. Then, I'll have what's left of my longevity plus the five years this rejuvenation would clip off."

"Why, Howard, dear." Leah sounded shocked. "You don't know what you're talking about. An aunt of mine elected that choice and it was perfectly horrible. She drooled the last few years of her life and was helpless as a baby."

"Why didn't they use Euthanasia?" he asked.

"The courts decided she was-

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n't capable of making a rational decision."

He wiped his forehead. "That would be a long time off, darling. We'd have so much time together in the next fifteen years."

"But what would it be like if you were crippled with arthritis or some other disease?"

"You could divorce me if that happens."

"I can also divorce you if you don't go through with rejuvenation. You know it's the law."

"You wouldn't do that." His face was more lined than ever.

"Don't be silly, dear. Nobody gets old these days. Who would remain our friends? Why, everywhere we'd go, people would point us out. Oh, no, life wouldn't be livable."

"That sounds like a cruel and calculating decision to me," Howard said. "Either I take a chance on dying or you'll divorce me."

"You have no right to make such an accusation. I married a young man who said he was thirty years old. Six months later I discover he's sixty-five. Now who's cruel and calculating?"

"Please, darling, I didn't mean it. Look," he pleaded, "I'll even sign permission for you to have a lover. There's that young fellow that's always around. Maybe it's happened already."

She stood back from him. "Howard, you're being perfectly nasty. Just like an aged person you read about."

"Five million dollars, and all of it yours when I die a natural death." He put his hands in his pockets.

THE street door opened just then and a young man came toward them with a light springy step.

He offered his hand to Howard who took it slowly. "How are you, skipper? And you, Leah? I came as soon as I got your message."

"He's worried, Mike." Leah's face had brightened. "And now he's insisting on growing old."

"I've been through the wringer twice before, you see," Howard said in a low voice.

"I don't think you have much to worry about," Mike said. "Those medics know their business."

"Aging is a nasty process." Leah wrinkled her nose as if she smelled something offensive. "Maybe you can convince him, Mike."

"Leah is right, you know," Mike said. "A few years ago I visited the old age home. There's only one left. You'd be surprised at the amount of suffering old people go through before they die; cancer, angina, broken bones, strokes, arthritis. Rejuvenation

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won't work on extremely old bodies. Longevity has run out."

"Why does it have to clip off five years?" worried Howard.

"It's the old-age governor they found in the pituitary gland. They can turn it back, but the shock takes off about five years."

"Oh, I know what's in the medical articles," Howard growled. "Remember, I've been through here twice before. But the Sun was so warm this morning. It was like seeing everything for the last time. I felt like sitting down and letting everything drift."

"That's a sure sign that you really need rejuvenating," said Leah. "After it's over you'll be making me a golf widow again. Won't he, Mike?"

"Of course. He'll come out raring to go."

Howard looked from Mike to Leah and back at Mike. Age was no match for youth. If love hadn't started between them already, it would soon.

At the end of the long room, a door opened and two nurses entered, starched and antiseptic.

"Your room is ready, Mr. Kent," one nurse said.

Howard shuddered. "Everything is so horribly familiar. The pill to erase the worry, which doesn't work. The cart you ride on which makes you feel like a carcass. The little bump as you enter the regeneration room. Then you get a hypodermic and crawl into a long boiler tank."

"You're just nervous, dear," said Leah.

"A dismal, miasmic cloud settles on your mind and you decide you wouldn't go through it again for anything in the world."

Mike put his arm around Leah as if it were the most natural thing in the world. "He'll be all right, my darling."

Howard looked at them and then turned wearily to the nurse. "I'm ready."

The nurse walked down the

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long room with the stooped man and disappeared beyond the door.

"Did you tell him about us?" asked Mike.

"Of course not. What a man doesn't know won't hurt him."

"Are you Mrs. Kent?" asked the other nurse who had remained behind.

"Yes."

"The doctor said to remind you that the fourth time is very dangerous," the nurse said. "You'll have five years and six months without it. But possibly only six months if it should be successful."

"Better take the first offer, Leah," said Mike.

Leah smiled. "I found a gray hair and a wrinkle this morning, love. Better six months of youth than a thousand years of old age."

She went into his arms. "Don't worry about what happens, love. You'll have a lot of fun in the next seventy years."

He kissed her and held her closely.

"I've got to go now," she said. "I'm so grateful you were able to get the forged birth certificate."

Her high heels tapped rapidly on the tile floor as she walked down the long room with the other nurse.

"Good luck, Mother," he called after her.

—LUCIUS DANIEL

FORECAST

Next month, Robert Sheckley will hand you your SKULKING PERMIT, a novelet about a harried little colony, cut off from Earth for 200 years, that has to make Man's millenia-long climb to civilization in two frantic weeks! It's a hard job, no question of it, but there are books to help. For those who maintain that book-larnin' can't hold a candle to practical experience, this may seem to be complete confirmation . . . but is it? Then again, maybe it is, for the civilization that emerges from the books is as engaging a bedlam as any you've ever visited in fiction!

In ASSIGNMENT'S END, Roger Dee introduces a man with an absolutely unique wild talent. Alcorn's gift brings peace to everybody who comes anywhere near him. There is only one person who is exempt—himself!

Until the issue is made up, it's impossible to tell what will balance these items and our short stories, but there will be at least one other long novelet . . . a beauty, too, let us add!

And, of course, Willy Ley's FOR YOUR INFORMATION and our usual departments . . . plus a genuinely delightful Christmas cover by Emsh . . . another in his wonderfully screwball annual series of alien Yuletides for GALAXY! If you can't see it on the newsstand, bawl out your dealer, see your oculist . . . or take advantage of our spectacular holiday offer on page 117!

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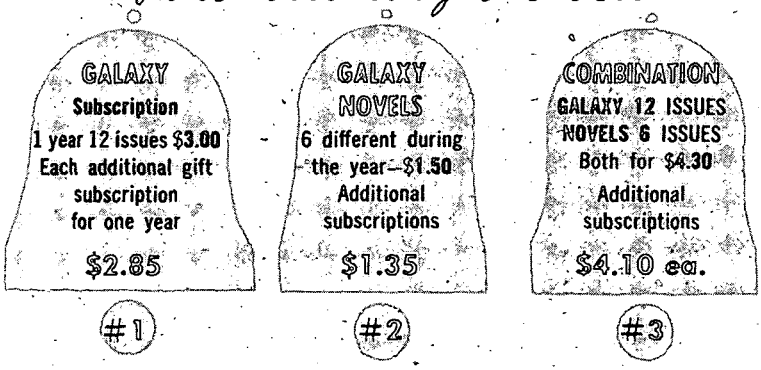

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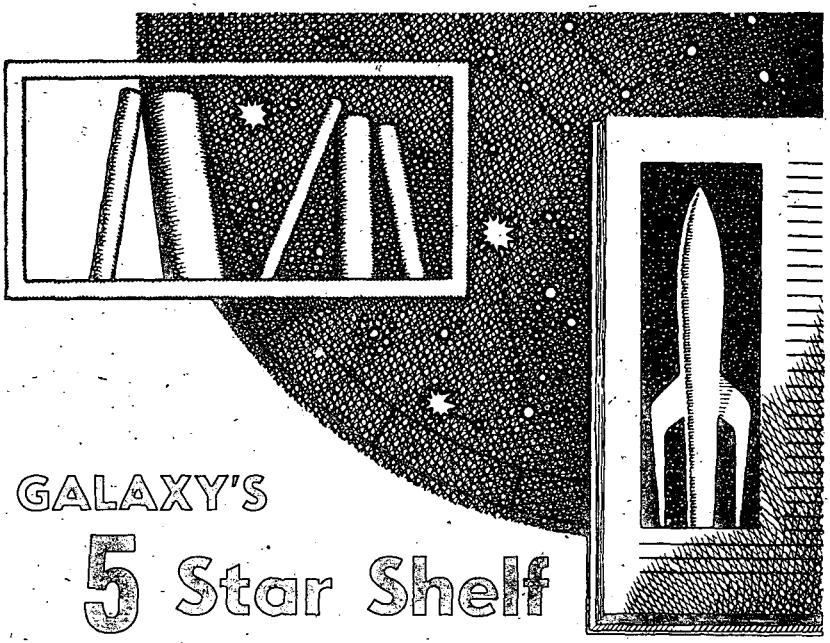

GALAXY'S 5 Star Shelf

CHILDREN OF THE WIND by *Burgess Drake. J. B. Lippincott Co.,* $3.50

I MUST admit in advance that I have gone off the deep end for this book. It is not for the devotees of space adventures or sociological anti-utopias; it is much more for lovers of James Stephens, Kenneth Grahame, and (more specifically the E. B. White of *Stuart Little* or the Theodore Sturgeon of *More Than Human.*

It is almost perfect of its kind, a "novel of the imagination" in the best English tradition of gentle but pointed fantasy, written in a warm, moving, richly evocative style that only occasionally gives the impression of being slightly precious.

The story is—on the surface—the standard one of poltergeist phenomena, a "ghost-haunt" in a typical many-roomed and luxuriantly gardened English mansion, complete with servants in the servants' quarters and all the rest of it. But it is so much more than that!

For one thing, it is "written by" one of the two poltergeists

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that cause all the disturbances, a lad named Trixie. He tells of his mother, childless Mary Hilary, her heel of a British politician husband—and of the twins, Janet and himself, who never lived, but were "kindled into being" by Mary's wanting them.

Nothing can be more enchanting and tragic than the delicate building up of the character of the little non-material lad as he tells of his equally ephemeral sister, and of their relations to the physical characters in the book.

I know it may all sound a bit ridiculous to the hard-boiled and the serious-minded, but I assure you it is not—not, that is, if you still care for the sort of poetic fantasy that today, alas, seems to be almost extinct. If you do enjoy such "stuff as dreams are made on," *please* do not pass up this lovely book.

TIME TO COME, edited by August Derleth. Farrar, Straus and Young, $3.95

THE trend toward collections of heretofore-unpublished science fiction and fantasy continues, with the appearance of this one by the Sage of Sauk City. Twelve stories for almost $4.00 — or about double the material in an average issue of GALAXY for more than ten times as much money.

Oh, well.

Painfully uneven, too, is the content of the book. There are two Class A tales, one by Poul Anderson and one little dandy by Evelyn Smith; three B and B-plus items by Asimov, Clarke and Dick; and seven ranging from C to D-minus by authors whose names we will charitably not expose here to the public view.

THE ALTERED EGO by Jerry Sohl. Rinehart & Co., $2.50

SOHL'S fourth science fiction offering is just as slick, fast-moving, melodramatic and essentially empty as his previous ones. This one deals with the old "immortality" idea of renewing—or even copying — the brains and bodies of the deserving dead, so they can keep on being valuable to society.

A nefarious bunch of characters try to subvert this noble scheme to their own base ends, but are defeated by the son of a man who has been murdered and then disagreeably *mis*copied, and by the inevitable pinup heroine with "blonde hair, bronzed shoulders, small waist and long legs."

THE FABULOUS JOURNEY OF HIERONYMUS MEEKER by Willy Johns. Little, Brown & Co., $3.50

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IF you want a really disagreeable and almost pointless experience in reading, I recommend this wordy pseudo-imitation of *Gulliver's Travels* to your masochistic attention.

An interplanetary exploration crew is mysteriously stranded on an unknown planet which the literary-minded gents on the ship name Thalia.

They go through interminably gruesome adventures among the Kodliks, vegetable-wormlike creatures whose society seems to be intended to satirize some sort of rigid traditionalist theocracy. The Gromliks, squarish beings who serve the author as a blunt-edged parody on communism; and two other groups, the Vimliks and the Optliks, the nature of which will forever be unknown to me, since I just quit reading at that dismal point.

Of course, this may be the greatest satire since 1984, but somehow I doubt it.

RETURN TO TOMORROW by L. Ron Hubbard. Ace Books, Inc., 25c

"AS mass approaches infinity, time approaches zero." This relativity concept is the basis of a fast-paced and grim adventure by the manufacturer of dianetics.

The story, which first appeared under the title "To The Stars" in *Astounding* back in 1950, develops the notion that the crews of interstellar ships age only months while they are in transit, while on Earth people age decades, even centuries.

The crews thereby become a class apart, having no friends, no families, no durable human contacts other than their crew mates. Yet the faster-than-light ships still go out, for they have a crucial function: the saving of the human race.

Hubbard's melodramatic development of this thesis is just short of absurdity, but interesting nevertheless.

COSMIC MANHUNT by L. Sprague de Camp; RING AROUND THE SUN by Clifford Simak. Ace Books, Inc., 35c

THE newest Ace "double" gives you a reprint of Simak's richly imaginative novel that first appeared in this magazine and then was hard-covered by Simon and Schuster, and publishes for the first time since its original serialization in *Astounding* one of de Camp's Krishnan series, original title "The Queen of Zamba."

De Camp gets around the problem of subjective time differences that laid the groundwork for the plot of Hubbard's novel (see above) by having peo-

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ple on Earth who want to remain the same age as star travelers take "trance pills." Very simple.

Otherwise, this is a cops-and-robbers adventure on a planet whose natives are still in a pre-industrial stage of development. It involves a hunt for the runaway daughter of a rich Levantine (Earthian) who has eloped to said planet with a typical de Campian adventurer named Fallon.

It's fast-moving and moderately sophisticated entertainment, bubble-light though not bubble-headed, and considerably below the author's best.

Simak's offering makes up for it.

THE YEAR AFTER TOMORROW, edited by Lester del Rey, Cecile Matschat and Carl Carmer. The John C. Winston Co., $3.00

THIS nine-story anthology for young people consists of three tales each by Carl H. Claudy and Peter van Dresser, all taken from the back files of *The American Boy,* two by del Rey from *Astounding,* and one by Robert Moore Williams (the only "A" story in the book—"The Red Death of Mars") also from *Astounding.* One of Claudy's stories, "The Land of No Shadow," is also worth attention, as is del Rey's offering, "Kindness."

The rest are run-of-the-mill kid stuff, not bad, but none meriting hard covers.

TROUBLE ON TITAN by Alan E. Nourse; ROCKETS TO NOWHERE by Philip St. John; THE SECRET OF SATURN'S RINGS by Donald A. Wollheim. The John C. Winston Co., $2.00 *each*

HERE are three more exciting space operas in the Winston series of science fiction juveniles, making 24 in all (including the anthology reviewed above). None make any pretense at depth or seriousness of purpose, but they are all good clean adventure without viciousness or unnecessary brutality.

Two deal with aspects of Saturn, the Nourse book being more real than the Wollheim, which is in the old tradition of Villains in the Pay of the Vested Interests Versus the Idealistic Professor and his Daring Young Son; but both are easy to read.

St. John's book, dealing with the problems of security in a future America, where almost every thing that is important is "top secret," is likewise a good thriller, but it has the added attraction of a pretty pointed moral. It has a nice gimmick, too, in the form of an "invisible" space sta-

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tion. You'll be surprised at what it turns out to be.

MEL OLIVER AND SPACE ROVER ON MARS by William Morrison. Gnome Press, $2.50

THIS juvenile has one quality none of the items reviewed above can claim: simple charm. It is much nearer to the delightful Heinlein formula, as evidenced in his series of young people's books for Scribner, than any of the volumes in the Winston series I have yet read.

The tale is, I suppose, strictly for youngsters, even though I enjoyed it. (What does that make me?) Yet because of the warm realization of all the characters and the vividness of the spaceship and Martian backgrounds, it has a vitality that is most appealing.

There is a boy stowaway and also an almost "human" collie named Space Rover. They become involved with an interplanetary circus run by a Martian strongman and a Venusian india-rubber type. There are plots and counter-plots, all kinds of crises and to-be-expected surprises, a girl (very nice), and the usual allotment of villains.

But the whole is more than the sum of its parts because of the strong feeling of identification one has with the leading characters.

I'd call the book a worthwhile item for the young and also for us older folk who are in search of vicarious escape.

THE NATURE OF LIGHT AND COLOUR IN THE OPEN AIR by M. Minnaert. Dover Publications, Inc., paper, $1.95

THIS unusual book describes and explains a hundred or more of the common (and uncommon) physical phenomena that occur because of the existence of the Earth's atmosphere, the nature of the Sun's light, and the curious construction of the human eye.

It covers everything from rainbows to halos around street lights, from luminescent clouds to glowworms.

You'd be surprised how much you don't know about some of the simplest aspects of light as it works its miracles and mysteries in the air of our planet. I don't think a book like this has ever been done before, either, which should make it particularly worthy of your attention.

—GROFF CONKLIN

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The Age of Kindness

By ARTHUR SELLINGS

There was only one way for Bruno to be like everybody . . . get rid of all of them!

A ROUGHER, earlier age would have looked the other way when he passed by. But now they refused to notice any difference in him. They admitted him into their company, invited him to join their fun. It was he who turned away.

An earlier age would have feared him. Whispers would have been exchanged across back fences. No smallest crime could have been left unsolved in the neighborhood without being laid darkly at his door. But there was hardly any crime. There were no back fences. The only whispers were the ones in his own head. And they never stopped.

He would have been taunted with nicknames by a cruder people. They would have called him Humpy because he was a hunchback. They would have called him Shorty because he was small. They would have called him Smily because his face was freaked in a perpetual expression whose only resemblance to a smile was coincidental.

Yet if he'd been in danger, or if anyone had lifted a hand against his twistedness, some of those who called him names would have leaped to his defense. But in the era in which he was born, none would have thought to

Illustrated by DICK FRANCIS

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mock him, none to lift a hand against him, none to have a chance to defend him.

If he had been born three hundred years before, in the Twentieth Century, he would have found an ungainly balance. He would have seen others like himself. He would have established a shy, unspoken communion with them, and with all things piteous, misshapen, broken, flawed. And he might have learned to tend a spark of beauty in his heart, knowing that most of the people about him were as twisted in their souls as he was in his body.

But in this age there were no others like him. Everybody else was straight, both in body and soul. The making of a human was a science and an art now. There had been no such accident as himself for several generations.

An earlier people would have looked upon him at birth, and with a brutal mercy they might have killed him.

But this was the age of light . . . the age of kindness.

HE squinted up at the long, brilliant shape. "Where is it going to?" he asked.

They smiled gently, laying aside their tools. They had heard of Bruno, knew that he roamed from place to place just as people had in the Dark Ages. All the same they looked at the name stenciled on the breast of his tunic before replying. To have used his name without doing this would have been impolite, drawing attention to the fact that his deformity was widely known.

"We hope it will go to a star, Bruno."

"Why do you only *hope*?"

"Because it is very difficult. Once men thought it would be easy. They thought they had it all solved. Ten years, they thought, twenty at the most, and they'd reach the Moon. As easily as that."

"That was three hundred years ago," his companion put in.

"It has taken all this time, then?"

"Well, not exactly. We've only just started up again these last few years. You see, back in the Dark Ages they had two dreams. One was a good dream, by their standards. The other was a nightmare. The nightmare nearly came true. The dream stayed just a dream. For the nightmare all but blotted out the dream, what with the war, the rebuilding after, lack of tools and resources. And they had other concerns. They had to conquer themselves first before they could conquer space. Because the techniques that could annihilate space could annihilate Man, too."

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"And now you can do it?"

"Yes, I think so. We can try, anyway. We have to. People have never forgotten that dream. In a way they've gone past it. But all the other things that people thought so worthwhile before they were accomplished, so that now we can say that was good, or that was bad, but either way it was *done*. But space travel is a parabola that was never traced. A leap that was halted in mid-air. An asymptote that was striven for, but never reached."

"You're talking over the lad's head," said the other technician.

The first technician gave him a warning look. His words implied a criticism, a recognition of Bruno's deficiency. "Bruno understands, don't you, Bruno? It's a kind of lingering sadness that's been in people all this time. We've got to do it at least once, then everybody can get on with their work in peace."

BY now, Bruno should have reached the limits of conversation. A few sentences, a minute or two, was as much as he could normally stand before consciousness of his own ugliness made him break off and flee. But now he felt something stir inside him which made him oblivious to that. Here was a chiming with old dreams, a new chapter to the yellowed books he'd read.

"But that's wrong," he said. "People shouldn't just leave it there. They should go on and on like the old explorers over the oceans. Like Cabot and Columbus, Vasco da Gama and Magellan." He knew their names, all of that great company of lone adventurers, sailing on and on away from the crowded and familiar cities, out into the solitary unknown.

The two technicians looked at him gently.

"That was a long time ago," one of them answered. "Things have changed since then. *Men* have changed. One return trip to Venus and everybody will be content. Even if the ship should crash or not be able to return, one word by radio would be enough. Man knows of the Universe within now. That is far richer than the one outside. The one within is endless. The one outside is finite; it curves back on itself."

"*Venus*," said Bruno, dwelling on the word. "The Evening Star. But the Moon is closer. Why isn't the ship going to the Moon first?"

"Because," said the technician, "it takes a man time to get used to the changes of space. After leaving Earth he has to adapt himself to space, then he has to adapt himself to landing. Going to the Moon, those processes would come too close together.

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By going to one of the planets, the pilot has enough time to adapt. Do you see?"

Bruno seemed not to hear him. He stood there, thought puckering his face even more than usual.

"Well," said the other technician. "We have to get on with our work, otherwise nobody will get anywhere." He turned away, his companion with him.

"Wait," said Bruno. "How many will go on this trip?"

They turned back, carefully concealing their impatience.

"Only one. Machines will do all the work except piloting."

"Do you think—?" He hopped up and down clumsily in his excitement. "Do you think *I* could be that one?"

They looked at him, then at each other. One bit his lip, the other looked at his feet. Neither spoke.

"But can't I? I could learn how to fly it."

One answered him. "It's not that, Bruno. There isn't too much to learn. It's all set down in a series of numbers for the takeoff and landing. We could probably send a pilotless craft, but that wouldn't be the same thing, would it? Anyway, they've already selected the pilot."

"But they can change him, can't they? If it's as you say—that they just want to do it this once and then they'll be satisfied—then surely nobody especially wants to go. But I do. I *want* to go!"

"It's not that, Bruno. You see—" But they couldn't say it. "Go ask Dr. Marcus in Main Block there. He'll explain."

DR. Marcus was a kind man. He was also a man with abundant self-control. When Bruno made his request, he only lifted his eyebrows—no more of a gesture than he would have given had it been anybody else.

"Hm-mm." He stroked his chin. "I'm afraid not, Bruno. You see, the pilot has to be fit and strong."

"But I'm fit. I'm strong. I've got strong hands. I can bend an inch bar of iron with my bare hands. I know I could control it!"

"I'm afraid it's not as easy as that. The pilot must be prepared to go through great stress. It isn't only in his hands that he needs strength. He has to be—" He spread his hands, leaving his sentence unfinished.

Tears of helpless anger started in Bruno's eyes. "You mean straight and perfect! Like anyone but *me*. That's what you mean, isn't it? But if there's all that stress how do you know that *any* pilot would come out of it straight and perfect?"

"We don't," Dr. Marcus said quietly. "But he's got to start

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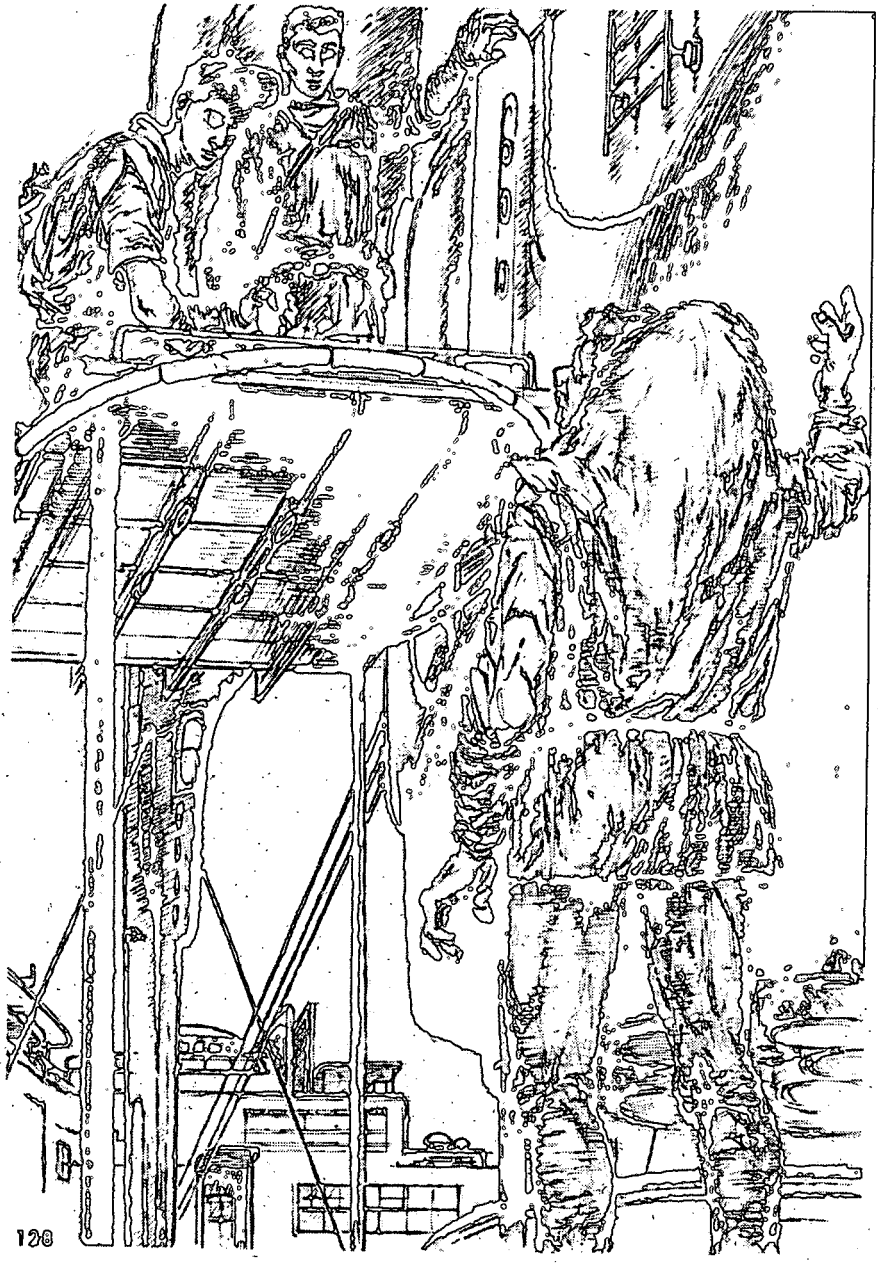

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that way. The man we're sending up has had exhaustive tests to make sure he can stand it."

"Well, test me."

"I'm sorry, I couldn't do that. Don't you see? It wouldn't test you. It would *kill* you."

"I don't mind taking the chance. My life's not precious to me the way other peoples' are to them. And I've got freedom of choice by the statute."

"So you have. But so have I, and I wouldn't do it. Anyway, there isn't time. Everything's all set. The tests take weeks, and the ship takes off tomorrow morning." He relaxed, smiling. "Now there's a fact that a lot of people don't know. We're not making any fuss about the attempt. The big news will be given out if we succeed. Tell you what I can do, though. If you're so interested, I'll arrange for you to be in the Communications Room and you can follow the flight all the way. Then you—"

"It doesn't matter," Bruno said bitterly, cutting across his speech. "I'm sorry I bothered you." He turned to hide the tears.

Dr. Marcus kept a set smile on his face. "No bother, Bruno. No bother at all. Any time—" But Bruno was gone.

ALL the rest of that day he watched the ship from behind a dune in the desert, gazing, gazing, until the long silvery shape outlined against the sky seemed to become the shining symbol of the only hope he'd ever had in his life. The only one, that was, except the impossible one—to be straight and perfect.

He saw technicians climb the ladder with portable tools and meters. As evening came and the light faded from the sky, daylight lamps took over. And then the technicians descended the ladder one by one. He heard their laughing voices as they made their way back to the ring of buildings that surrounded the ship. After a little while the lamps were turned off, and the ship became only a black finger against the night sky.

Bruno came out from his hiding place.

He walked calmly up to the ring of buildings, waiting cautiously in the shadow of one of them to make sure the coast was clear. He heard laughter and voices coming from a nearby building, saw, through its windows, men eating. There was not another soul in sight.

He broke out of the shadows and went scuttling across the three-hundred-yard radius that separated him from the ship. He would have prayed aloud as he ran, if the mere exertion of running hadn't needed all his energy.

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As it was, his prayer was like an unspoken agony in his breast.

He covered the last twenty yards like someone in a nightmare, expecting, every second, the sound of alarmed voices, the flashing of lights. But none came. He sank, panting, in the shadow of the tail assembly. Anxiously he cast his gaze all around. Nothing stirred. There were no guards set over the ship. In this day and age, that was a precaution nobody thought necessary.

As soon as he had recovered his breath, he mounted the ladder. It was on the side of the ship in shadow from the thin light of the new Moon. The port was poised on massive gimbals, and swung enough at his touch to admit his squirming body.

Once inside, he was safe. The short passageway that tunneled from the port led to only one place—the control room. It was lit faintly but adequately by the lights from innumerable meters and gauges. Now that his own trembling had subsided, he could feel the almost imperceptible tremor of the ship, a slight quiver as of immense power straining to be released. He sank into the pilot's couch seat.

ALL that night he spent examining the controls and reading the manuals. A lot of it he couldn't understand, but that didn't matter. He found the chart giving the series of control operations; that was the important thing. He checked the numbers with the levers, the wheels, the gauges.

Nobody came aboard the ship. It was evidently all ready. All that was left now was the entry of the pilot in the morning, the depressing of levers—and take-off.

And by the time morning came, Bruno, too, was ready. He waited until he saw signs of stirring in the camp, saw one or two figures moving out from the sleeping quarters.

Then he closed the port, lay back on the couch, gave one final check to the firing series and stretched out his hand. His last thought was an unsuccessful attempt to imagine the expressions on all the faces below when the gray morning should suddenly erupt into flaming thunder. And then he felt the cool metal of the levers at his fingertip. He closed his eyes and pressed . . .

After the gray-out came agony, red and blinding. His body was part of the ship, flattened and fused into oneness with the burning metal and the thundering rockets. He was so much a part of it that all of the energy passed through him, through tortured sinews and shrieking nerves. And

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yet a part of him, a tiny part, remained free of it, standing beyond all pain, watching and rejoicing, knowing dimly but surely that he had survived the first shock.

Though his brain was no longer a thinking apparatus — but only a receptor and switchboard of pain—that precious little he realized, though his senses were lost in a hurricane, his ears stuffed with thunder, his eyes filled with a red smoke.

When at last he could clear his eyes he could still see redness—the red of his own blood. It was spilled down the front of his tunic. He tasted the stickiness of it on his lips, felt it like phlegm in his throat. Yet his only thought was one of gratitude that he had been spared to see and to taste and to feel again, because he had not dared to hope for so much.

The tiny part of him that had stood aside and rejoiced — will, essential spark, or whatever—seemed to grow, triumphant over the flesh and its fallibility. It grew to full stature when, with frantic thought, he looked down at the levers to press the next ones in the series. *They were already down.* Somehow, through that purgatory, that bystanding spark had operated his bludgeoned brain to do its will.

For the first time in his life Bruno smiled a smile that was not merely an accident of the flesh.

THERE followed the days of free fall, the days of respite while the pain of his body ebbed. Once he was seized with an hours-long spasm of coughing that drenched him with blood. And he thought he would die, that the crucifixion of the take-off had torn something vital inside him. But he didn't care, because he had had his first sight of space, diamond-sharp and depthless, by then. And he recovered.

By the time the braking rockets were due to be applied, he was well again. It was as they had said on Earth—the Earth that was becoming more and more distant and unreal. They had been right about the body having to adapt itself. But they'd also been wrong—because it didn't need a straight body, only strength of purpose and a burning desire to succeed.

Perhaps, he found pleasure in thinking, even one with a straight body would have succumbed, lacking that purpose. The straight ones back on Earth hadn't the right outlook. What could be achieved by an attitude that saw space travel only as a clearing up of something left undone—an end rather than a beginning?

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Thinking like that, he did not touch the radio all through the trip.

It was only as he approached the white face of Venus that he reached over to it. After all, he owed it to them to give them a reply. If it hadn't been for them and their work he would never have had sight of space.

He would have to speak now. He could not rely upon the miracle of will to see him through the braking, the landing orbit, the final descent into the clouds. He flipped the switch.

A voice came through faintly over the black distances. "Bruno, are you all right? Bruno, are you all right? Bruno—" It went on and on without ceasing. It made him feel guilty to think of the weeks and weeks they must have been sending out that message without reply. Doubtless, it was recorded by now. But back there they must be waiting, keeping vigil over their receiver. They were kind, considerate people They just didn't understand, that was all.

He switched over to the transmitter and spoke. "This is Bruno. I am all right. I am landing on Venus. Even if I crash, I can't help but make it now." He switched off. He took one look at the receiver, then he shook his head and settled onto the couch . . . .

ALL was silence after the thunder of the jets, the screaming of air past the scorched sides of the ship. He lay there watching the ceiling. He looked down and saw no blood this time, only vomit. At takeoff, pain had blanketed the lesser wrench of nausea. But on landing, with its sudden shifts and decelerations, nausea had come into its own. He felt exhausted and lay there a long time.

Finally, when he thought he could manage it, he tottered to his feet, clutching at a stanchion for support. He drank and ate, and felt better. Then he cleaned himself up. He had learned during the flight how the atmosphere meter worked. He checked it and found that the air outside was breathable. He operated the lock and climbed out onto the ladder.

All around was grassland, stretching to the horizon in every direction. He could make out patches of color that must be flowers. Color, too, hovered in the air like butterflies or clouds of pollen. The air was warm and heavy with tantalizing odors, pungencies of strange balsams, scents of unknown nectars. And there was something else, too. The whisper of wings. Of many wings. He craned his head upward—

—And there they were. A flight of winged creatures, half bird,

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half diaphanous-winged insect.

They were all looking at him with a soft, unhostile gaze as their bodies turned and planed in the air. As he looked up at them, they broke into a chorus of dovelike cooing. Then they dropped from the sky and gathered at the foot of the ladder. They waited there, looking up at him, their cooing muted to a murmur.

Bruno felt no fear. They looked too gentle to hurt anyone. All he felt was a confusion that made the blood mount to his cheeks. He was not used to the gaze of so many eyes. He turned to flee back into the rocket.

A twittering broke out at his gesture of retreat. It sounded strangely like disappointment. Then one voice sang out clearly in a soft chanting. Out of curiosity he looked down over his twisted shoulder.

ONE of the creatures had stepped forward. The rest had fallen back into a semicircle behind it. It was almost as if the one in the middle were chanting an address of welcome. As Bruno looked down it broke off its song, cooed excitedly and cocked its head to one side. Its big, yellow eyes seemed to look up beseechingly. It made little flapping motions with its wings.

And then Bruno realized the truth. That it didn't matter. That even a perfect and straight human being would be as strange to these creatures as he was. These gentle creatures below might be themselves only the stunted remnants of a nobler race. How would he know? And what difference would it make?

On a sudden impulse he descended the ladder. Six rungs from the bottom he turned and faced them, his back to the ladder, his strong hands grasping it.

"My name is Bruno," he began. "I come from the planet Earth. I—" Did it matter if he went on? They couldn't understand him. It was only a formality. And yet, as his lips came to the next words, they trembled. How could he utter them, even to creatures who could not understand them, without committing something close to blasphemy?

He scanned the wide eyes of the creatures, realizing that for the first time in his life he could meet the gaze of so many without feeling ashamed, without turning away. Why shouldn't he go on? It was not the outer shell that mattered, that made him what he was. He finished his sentence.

"I am a man," he said firmly and clearly.

And then he climbed down the last six rungs of the ladder.

—ARTHUR SELLINGS

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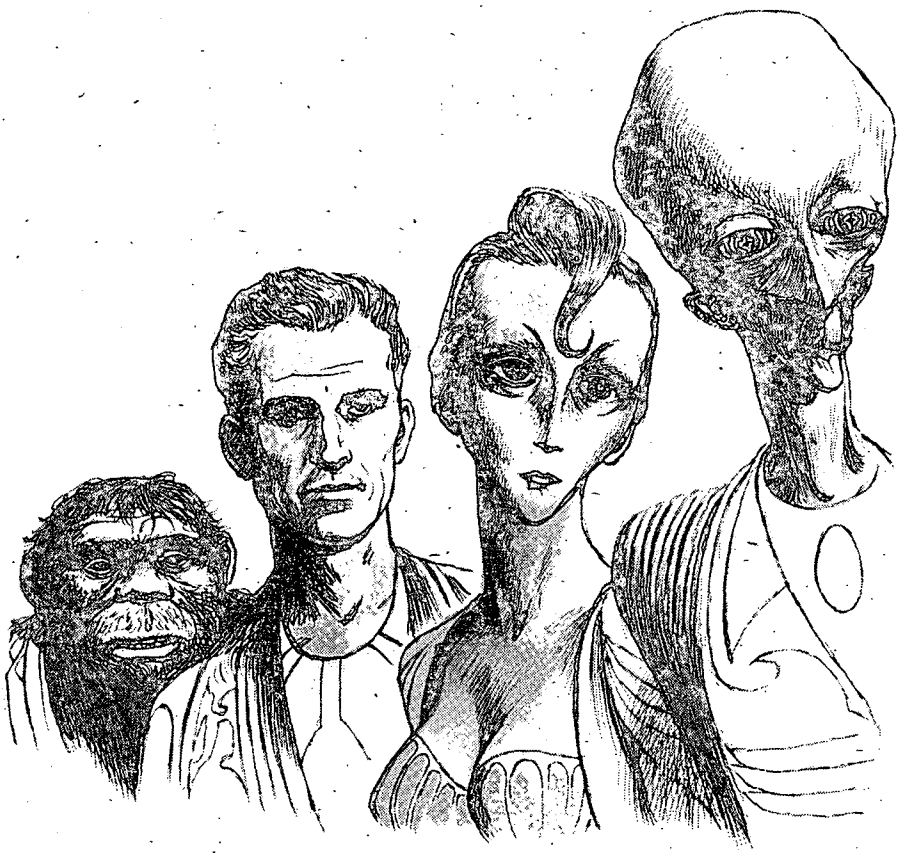
BIG ANCESTOR

By F. L. WALLACE

Man's family tree was awesome enough to give every galactic race an inferiority complex—but then he tried to climb it!



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IN repose, Taphetta the Riboneer resembled a fancy giant bow on a package. His four flat legs looped out and in, the ends tucked under his wide, thin body, which constituted the knot at the middle. His neck was flat, too, arching out in another loop. Of all his features, only his head had appreciable thickness and it was crowned with a dozen long though narrower ribbons.

Taphetta rattled the head fronds together in a surprisingly good imitation of speech. "Yes, I've heard the legend."

"It's more than a legend," said Sam Halden, biologist. The reaction was not unexpected — non-humans tended to dismiss the data as convenient speculation and nothing more. "There are at least a hundred kinds of humans, each supposedly originating in strict seclusion on as

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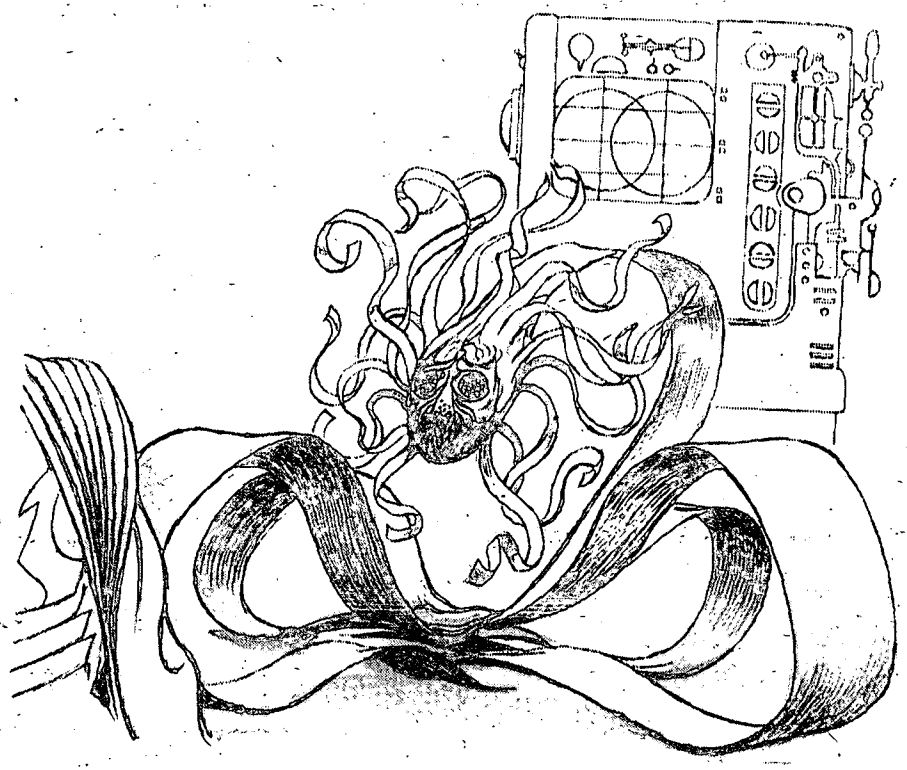

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many widely scattered planets. Obviously there was no contact throughout the ages before space travel—*and yet each planetary race can interbreed with a minimum of ten others!* That's more than a legend—one hell of a lot more!"

"It is impressive," admitted Taphetta. "But I find it mildly distasteful to consider mating with someone who does not belong to my species."

"That's because you're unique," said Halden. "Outside of your own world, there's nothing like your species, except superficially, and that's true of all other creatures, intelligent or not, with the sole exception of mankind. Actually, the four of us here, though it's accidental, very nearly represent the biological spectrum of human development.

"Emmer, a Neanderthal type and our archeologist, is around the beginning of the scale. I'm from Earth, near the middle, though on Emmer's side. Meredith, linguist, is on the other side of the middle. And beyond her, toward the far end, is Kelburn, mathematician. There's a corresponding span of fertility. Emmer just misses being able to breed with my kind, but there's a fair chance that I'd be fertile with Meredith and a similar though lesser chance that her fertility may extend to Kelburn."

TAPHETTA rustled his speech ribbons quizzically. "But I thought it was proved that some humans did originate on one planet, that there was an unbroken line of evolution that could be traced back a billion years."

"You're thinking of Earth," said Halden. "Humans require a certain kind of planet. It's reasonable to assume that, if men were set down on a hundred such worlds, they'd seem to fit in with native life-forms on a few of them. That's what happened on Earth; when Man arrived, there was actually a manlike creature there. Naturally our early evolutionists stretched their theories to cover the facts they had.

"But there are other worlds in which humans who were there before the Stone Age aren't related to anything else there. We have to conclude that Man didn't originate on any of the planets on which he is now found. Instead, he evolved elsewhere and later was scattered throughout this section of the Milky Way."

"And so, to account for the unique race that can interbreed across thousands of light-years, you've brought in the big ancestor," commented Taphetta dryly. "It seems an unnecessary simplification."

"Can you think of a better explanation?" asked Kelburn.

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"Something had to distribute one species so widely and it's not the result of parallel evolution—not when a hundred human races are involved, and *only* the human race."

"I can't think of a better explanation." Taphetta rearranged his ribbons. "Frankly, no one else is much interested in Man's theories about himself."

It was easy to understand the attitude. Man was the most numerous though not always the most advanced—Ribboneers had a civilization as high as anything in the known section of the Milky Way, and there were others—and humans were more than a little feared. If they ever got together—but they hadn't except in agreement as to their common origin.

Still, Taphetta the Ribboneer was an experienced pilot and could be very useful. A clear statement of their position was essential in helping him make up his mind. "You've heard of the adjacency mating principle?" asked Sam Halden.

"Vaguely. Most people have if they've been around men."

"We've got new data and are able to interpret it better. The theory is that humans who can mate with each other were once physically close. We've got a list of all our races arranged in sequence. If planetary race F can mate with race E back to A and forward to M, and race G is fertile only back to B, but forward to O, then we assume that whatever their positions are now, at once time G was actually adjacent to F, but was a little further along. When we project back into time those star systems on which humans existed prior to space travel, we get a certain pattern. Kelburn can explain it to you."

The normally pink body of the Ribboneer flushed slightly. The color change was almost imperceptible, but it was enough to indicate that he was interested.

KELBURN went to the projector. "It would be easier if we knew all the stars in the Milky Way, but though we've explored only a small portion of it, we can reconstruct a fairly accurate representation of the past."

He pressed the controls and stars twinkled on the screen. "We're looking down on the plane of the Galaxy. This is one arm of it as it is today and here are the human systems." He pressed another control and, for purposes of identification, certain stars became more brilliant. There was no pattern, merely a scattering of stars. "The whole Milky Way is rotating. And while stars in a given region tend to remain together, there's also a random motion. Here's what hap-

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pens when we calculate the positions of stars in the past."

Flecks of light shifted and flowed across the screen. Kelburn stopped the motion.

"Two hundred thousand years ago," he said.

There was a pattern of the identified stars. They were spaced at fairly equal intervals along a regular curve, a horseshoe loop that didn't close, though if the ends were extended, the lines would have crossed.

Taphetta rustled. "The math is accurate?"

"As accurate as it can be with a million-plus body problem."

"And that's the hypothetical route of the unknown ancestor?"

"To the best of our knowledge," said Kelburn. "And whereas there are humans who are relatively near and not fertile, they can always mate with those they were adjacent to *two hundred thousand years ago!*"

"The adjacency mating principle. I've never seen it demonstrated," murmured Taphetta, flexing his ribbons. "Is that the only era that satisfies the calculations?"

"Plus or minus a hundred thousand years, we can still get something that might be the path of a spaceship attempting to cover a representative section of territory," said Kelburn. "However, we have other ways of dating it. On some worlds on which there are no other mammals, we're able to place the first human fossils chronologically. The evidence is sometimes contradictory, but we believe we've got the time right."

Taphetta waved a ribbon at the chart. "And you think that where the two ends of the curve cross is your original home?"

"We think so," said Kelburn. "We've narrowed it down to several cubic light-years — then. Now it's far more. And, of course, if it were a fast-moving star, it might be completely out of the field of our exploration. But we're certain we've got a good chance of finding it this trip."

"It seems I must decide quickly." The Ribboneer glanced out the visionport, where another ship hung motionless in space beside them. "Do you mind if I ask other questions?"

"Go ahead," Kelburn invited sardonically. "But if it's not math, you'd better ask Halden. He's the leader of the expedition."

Halden flushed; the sarcasm wasn't necessary. It was true that Kelburn was the most advanced human type present, but while there were differences, biological and in the scale of intelligence, it wasn't as great as once was thought. Anyway, non-humans weren't trained in the fine distinctions that men made among themselves. And, higher

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or lower, he was as good a biologist as the other was a mathematician. And there was the matter of training; he'd been on several expeditions and this was Kelburn's first trip. Damn it, he thought, that rated some respect.

The Ribboneer shifted his attention. "Aside from the sudden illness of your pilot, why did you ask for me?"

"We didn't. The man became sick and required treatment we can't give him. Luckily, a ship was passing and we hailed it because it's four months to the nearest planet. They consented to take him back and told us that there was a passenger on board who was an experienced pilot. We have men who could do the job in a makeshift fashion, but the region we're heading for, while mapped, is largely unknown. We'd prefer to have an expert — and Ribboneers are famous for their navigational ability."

Taphetta crinkled politely at the reference to his skill. "I had other plans, but I can't evade professional obligations, and an emergency such as this should cancel out any previous agreements. Still, what are the incentives?"

Sam Halden coughed. "The usual, plus a little extra. We've copied the Ribboneer's standard nature, simplifying it a little and adding a per cent here and there for the crew pilot and scientist's share of the profits from any discoveries we may make."

"I'm complimented that you like our contract so well," said Taphetta, "but I really must have our own unsimplified version. If you want me, you'll take my contract. I came prepared." He extended a tightly bound roll that he had kept somewhere on his person.

They glanced at one another as Halden took it.

"You can read it if you want," offered Taphetta. "But it will take you all day—it's micro-printing. However, you needn't be afraid that I'm defrauding you. It's honored everywhere we go and we go nearly everywhere in this sector—places men have never been."

There was no choice if they wanted him, and they did. Besides, the integrity of Ribboneers was not to be questioned. Halden signed.

"Good." Taphetta crinkled. "Send it to the ship; they'll forward it for me. And you can tell the ship to go on without me." He rubbed his ribbons together. "Now if you'll get me the charts, I'll examine the region toward which we're heading."

FIRMON of hydroponics slouched in, a tall man with scanty hair and an equal lack of

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grace. He seemed to have difficulty in taking his eyes off Meredith, though, since he was a notch or so above her in the mating scale, he shouldn't have been so interested. But his planet had been inexplicably slow in developing and he wasn't completely aware of his place in the human hierarchy.

Disdainfully, Meredith adjusted a skirt that, a few inches shorter, wouldn't have been a skirt at all, revealing, while doing so, just how long and beautiful a woman's legs could be. Her people had never given much thought to physical modesty and, with legs like that, it was easy to see why.

Muttering something about primitive women, Firmon turned to the biologist. "The pilot doesn't like our air."

"Then change it to suit him. He's in charge of the ship and knows more about these things than I do."

"More than a man?" Firmon leered at Meredith and, when she failed to smile, added plaintively, "I did try to change it, but he still complains."

HALDEN took a deep breath. "Seems all right to me."

"To everybody else, too, but the tapeworm hasn't got lungs. He breathes through a million tubes scattered over his body."

It would do no good to explain that Taphetta wasn't a worm, that his evolution had taken a different course, but that he was in no sense less complex than Man. It was a paradox that some biologically higher humans hadn't developed as much as lower races and actually weren't prepared for the multitude of life-forms they'd meet in space. Firmon's reaction was quite typical.

"If he asks for cleaner air, it's because his system needs it," said Halden. "Do anything you can to give it to him."

"Can't. This is as good as I can get it. Taphetta thought you could do something about it."

"Hydroponics is your job. There's nothing *I* can do." Halden paused thoughtfully. "Is there something wrong with the plants?"

"In a way, I guess, and yet not really."

"What is it, some kind of toxic condition?"

"The plants are healthy enough, but something's chewing them down as fast as they grow."

"Insects? There shouldn't be any, but if there are, we've got sprays. Use them."

"It's an animal," said Firmon. "We tried poison and got a few, but now they won't touch the stuff. I had electronics rig up some traps. The animals seem to know what they are and we've

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never caught one that way."

Halden glowered at the man. "How long has this been going on?"

"About three months. It's not bad; we can keep up with them."

It was probably nothing to become alarmed at, but an animal on the ship was a nuisance, doubly so because of their pilot.

"Tell me what you know about it," said Halden.

"They're little things." Firmon held out his hands to show how small. "I don't know how they got on, but once they did, there were plenty of places to hide." He looked up defensively. "This is an old ship with new equipment and they hide under the machinery. There's nothing we can do except rebuild the ship from the hull inward."

Firmon was right. The new equipment had been installed in any place just to get it in and now there were inaccessible corners and crevices everywhere that couldn't be closed off without rebuilding.

They couldn't set up a continuous watch and shoot the animals down because there weren't that many men to spare. Besides, the use of weapons in hydroponics would cause more damage to the thing they were trying to protect than to the pest. He'd have to devise other ways.

Sam Halden got up. "I'll take a look and see what I can do."

"I'll come along and help," said Meredith, untwining her legs and leaning against him. "Your mistress ought to have some sort of privileges."

Halden started. So she *knew* that the crew was calling her that! Perhaps it was intended to discourage Firmon, but he wished she hadn't said it. It didn't help the situation at all.

TAPHETTA sat in a chair designed for humans. With a less flexible body, he wouldn't have fitted. Maybe it wasn't sitting, but his flat legs were folded neatly around the arms and his head rested comfortably on the seat. The head ribbons, which were his hands and voice, were never quite still.

He looked from Halden to Emmer and back again. "The hydroponics tech tells me you're contemplating an experiment. I don't like it."

Halden shrugged. "We've got to have better air. It might work."

"Pests on the ship? It's filthy! My people would never tolerate it!"

"Neither do we."

The Ribboneer's distaste subsided. "What kind of creatures are they?"

"I have a description, though I've never seen one. It's a small four-legged animal with two an-

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tennae at the lower base of its skull. A typical pest."

Taphetta rustled. "Have you found out how it got on?"

"It was probably brought in with the supplies," said the biologist. "Considering how far we've come, it may have been any one of a half a dozen planets. Anyway, it hid, and since most of the places it had access to were near the outer hull, it got an extra dose of hard radiation, or it may have nested near the atomic engines; both are possibilities. Either way, it mutated, became a different animal. It's developed a tolerance for the poisons we spray on plants. Other things it detects and avoids, even electronic traps."

"Then you believe it changed mentally as well as physically, that it's smarter?"

"I'd say that, yes. It must be a fairly intelligent creature to be so hard to get rid of. But it can be lured into traps, if the bait's strong enough."

"That's what I don't like," said Taphetta, curling. "Let me think it over while I ask questions." He turned to Emmer. "I'm curious about humans. Is there anything else you can tell me about the hypothetical ancestor?"

Emmer didn't look like the genius he was—a Neanderthal genius, but nonetheless a real one. In his field, he rated very high. He raised a stubble-flecked cheek from a large thick-fingered paw and ran shaggy hands through shaggier hair.

"I can speak with some authority," he rumbled. "I was born on a world with the most extensive relics. As a child, I played in the ruins of their camp."

"I don't question your authority," crinkled Taphetta. "To me, all humans—late or early and male or female—look remarkably alike. If you are an archeologist, that's enough for me." He paused and flicked his speech ribbons. "Camp, did you say?"

EMMER smiled, unsheathing great teeth. "You've never seen any pictures? Impressive, but just a camp, monolithic one-story structures, and we'd give something to know what they're made of. Presumably my world was one of the first they stopped at. They weren't used to roughing it, so they built more elaborately than they did later on. One-story structures and that's how we can guess at their size. The doorways were forty feet high."

"Very large," agreed Taphetta. It was difficult to tell whether he was impressed. "What did you find in the ruins?"

"Nothing," said Emmer. "There were buildings there and that was all, not a scrap of writing or a tool or a single picture. They covered a route estimated at

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thirty thousand light-years in less than five thousand years—and not one of them died that we have a record of."

"A faster-than-light drive and an extremely long life," mused Taphetta. "But they didn't leave any information for their descendants. Why?"

"Who knows? Their mental processes were certainly far different from ours. They may have thought we'd be better off without it. We do know they were looking for a special kind of planet, like Earth, because they visited so many of that type, yet different from it because they never stayed. They were pretty special people themselves, big and long-lived, and maybe they couldn't survive on any planet they found. Perhaps they had ways of determining there wasn't the kind of planet they needed in the entire Milky Way. Their science was tremendously advanced and when they learned that, they may have altered their germ plasm and left us, hoping that some of us would survive. Most of us did."

"This special planet sounds strange," murmured Taphetta.

"Not really," said Emmer. "Fifty human races reached space travel independently and those who did were scattered equally among early and late species. It's well known that individuals among my people are often as bright as any of Halden's or Meredith's, but as a whole we don't have the total capacity that later Man does, and yet we're as advanced in civilization. The difference? It must lie somewhere in the planets we live on and it's hard to say just what it is."

"What happened to those who didn't develop space travel?" asked Taphetta.

"We helped them," said Emmer.

And they had, no matter who or what they were, biologically late or early, in the depths of the bronze age or the threshold of atomic—because they were human. That was sometimes a frightening thing for non-humans, that the race stuck together. They weren't actually aggressive, but their total number was great and they held themselves aloof. The unknown ancestor again. Who else had such an origin and, it was tacitly assumed, such a destiny?

TAPHETTA changed his questioning. "What do you expect to gain from this discovery of the unknown ancestor?"

It was Halden who answered him. "There's the satisfaction of knowing where we came from."

"Of course," rustled the Ribboneer. "But a lot of money and equipment was required for

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this expedition. I can't believe that the educational institutions that are backing you did so purely out of intellectual curiosity."

"Cultural discoveries," rumbled Emmer. "How did our ancestors live? When a creature is greatly reduced in size, as we are, more than physiology is changed—the pattern of life itself is altered. Things that were easy for them are impossible for us. Look at their life span."

"No doubt," said Taphetta. "An archeologist would be interested in cultural discoveries."

"Two hundred thousand years ago, they had an extremely advanced civilization," added Halden. "A faster-than-light drive, and we've achieved that only within the last thousand years."

"But I think we have a better one than they did," said the Ribboneer. "There may be things we can learn from them in mechanics or physics, but wouldn't you say they were better biologists than anything else?"

Halden nodded. "Agreed. They couldn't find a suitable planet. So, working directly with their germ plasm, they modified themselves and produced us. They *were* master biologists."

"I thought so," said Taphetta. "I never paid much attention to your fantastic theories before I signed to pilot this ship, but you've built up a convincing case." He raised his head, speech ribbons curling fractionally and ceaselessly. "I don't like to, but we'll have to risk using bait for your pest."

He'd have done it anyway, but it was better to have the pilot's consent. And there was one question Halden wanted to ask; it had been bothering him vaguely. "What's the difference between the Ribboneer contract and the one we offered you? Our terms are more liberal."

"To the individual, they are, but it won't matter if you discover as much as you think you will. The difference is this: *My* terms don't permit you to withhold any discovery for the benefit of one race."

Taphetta was wrong; there had been no intention of withholding anything. Halden examined his own attitudes. *He* hadn't intended, but could he say that was true of the institutions backing the expedition? He couldn't, and it was too late now—whatever knowledge they acquired would have to be shared.

That was what Taphetta had been afraid of—there was one kind of technical advancement that multiplied unceasingly. The race that could improve itself through scientific control of its germ plasm had a start that could never be headed. The Ribboneer needn't worry now.

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"WHY do we have to watch it on the screen?" asked Meredith, glancing up. "I'd rather be in hydroponics."

Halden shrugged. "They may or may not be smarter than planetbound animals, but they're warier. They don't come out when anyone's near."

Lights dimmed in the distant hydroponic section and the screen with it, until he adjusted the infra-red frequencies. He motioned to the two crew members, each with his own peculiar screen, below which was a miniature keyboard.

"Ready?"

When they nodded, Halden said: "Do as you've rehearsed. Keep noise at a minimum, but when you do use it, be vague. Don't try to imitate them exactly."

At first, nothing happened on the big screen, and then a gray shape crept out. It slid through leaves, listened intently before coming forward. It jumped off one hydroponic section and fled across the open floor to the next. It paused, eyes glittering and antennae twitching.

Looking around once, it leaped up, seizing the ledge and clawing up the side of the tank. Standing on top and rising to its haunches, it began nibbling what it could reach.

Suddenly it whirled. Behind it and hitherto unnoticed was another shape, like it but larger. The newcomer inched forward. The small one retreated, skittering nervously. Without warning, the big one leaped and the small one tried to flee. In a few jumps, the big one caught up and mauled the other unmercifully.

It continued to bite even after the little one lay still. At last it backed off and waited, watching for signs of motion. There was none. Then it turned to the plant. When it had chewed off everything within reach, it climbed into the branches.

The little one twitched, moved a leg, and cautiously began dragging itself away. It rolled off the raised section and surprisingly made no noise as it fell. It seemed to revive, shaking itself and scurrying away, still within range of the screen.

Against the wall was a small platform. The little one climbed on top and there found something that seemed to interest it. It sniffed around and reached and felt the discovery. Wounds were forgotten as it snatched up the object and frisked back to the scene of its recent defeat.

This time it had no trouble with the raised section. It leaped and landed on top and made considerable noise in doing so. The big animal heard and twisted around. It saw and clambered

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down hastily, jumping the last few feet. Squealing, it hit the floor and charged.

The small one stood still till the last instant—and then a paw flickered out and an inch-long knife blade plunged into the throat of the charging creature. Red spurted out as the bigger beast screamed. The knife flashed in and out until the big animal collapsed and stopped moving.

The small creature removed the knife and wiped it on the pelt of its foe. Then it scampered back to the platform on which the knife had been found—*and laid it down.*

AT Halden's signal, the lights flared up and the screen became too bright for anything to be visible.

"Go in and get them," said Halden. "We don't want the pests to find out that the bodies aren't flesh."

"It was realistic enough," said

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Meredith as the crewmen shut off their machines and went out. "Do you think it will work?"

"It might. We had an audience."

"Did we? I didn't notice." Meredith leaned back. "Were the puppets exactly like the pests? And if not, will the pests be fooled?"

"The electronic puppets were a good imitation, but the animals don't have to identify them as their species. If they're smart enough, they'll know the value of a knife, no matter who uses it."

"What if they're smarter? Suppose they know a knife can't be used by a creature without real hands?"

"That's part of our precautions. They'll never know until they try—and they'll never get away from the trap to try."

"Very good. I never thought of that," said Meredith, coming closer. "I like the way your primitive mind works. At times I actually think of marrying you."

"Primitive," he said, alternately frozen and thawed, though he knew that, in relation to her, he was *not* advanced.

"It's almost a curse, isn't it?" She laughed and took the curse away by leaning provocatively against him. "But barbaric lovers are often nice."

Here we go again, he thought drearily, sliding his arm around her. To her, I'm merely a passionate savage.

They went to his cabin.

She sat down, smiling. Was she pretty? Maybe. For her own race, she wasn't tall, only by Terran standards. Her legs were disproportionately long and well shaped and her face was somewhat bland and featureless, except for a thin, straight, short nose. It was her eyes that made the difference, he decided. A notch or two up the scale of visual development, her eyes were larger and she could see an extra color on the violet end of the spectrum.

She settled back and looked at him. "It might be fun living with you on primeval Earth."

He said nothing; she knew as well as he that Earth was as advanced as her own world. She had something else in mind.

"I don't think I will, though. We might have children."

"Would it be wrong?" he asked. "I'm as intelligent as you. We wouldn't have subhuman monsters."

"It would be a step up—for you." Under her calm, there was tension. It had been there as long as he'd known her, but it was closer to the surface now. "Do I have the right to condemn the unborn? Should I make them start lower than I am?"

The conflict was not new nor

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confined to them. In one form or another, it governed personal relations between races that were united against non-humans, but held sharp distinctions themselves.

"I haven't asked you to marry me," he said bluntly.

"Because you're afraid I'd refuse."

It was true; no one asked a member of a higher race to enter a permanent union.

"Why did you ever have anything to do with me?" demanded Halden.

"Love," she said gloomily. "Physical attraction. But I can't let it lead me astray."

"Why not make a play for Kelburn? If you're going to be scientific about it, he'd give you children of the higher type."

"Kelburn." It didn't sound like a name, the way she said it. "I don't like him and he wouldn't marry me."

"He wouldn't, but he'd give you children if you were humble enough. There's a fifty per cent chance you might conceive."

SHE provocatively arched her back. Not even the women of Kelburn's race had a body like hers and she knew it.

"Racially, there should be a chance," she said. "Actually, Kelburn and I would be infertile."

"Can you be sure?" he asked, knowing it was a poor attempt to act unconcerned.

"How can anyone be sure on a theoretical basis?" she asked, an oblique smile narrowing her eyes. "I know we can't."

His face felt anesthetized. "Did you have to tell me that?"

She got up and came to him. She nuzzled against him and his reaction was purely reflexive. His hand swung out and he could feel the flesh give when his knuckles struck it.

She fell back and dazedly covered her face with her hand. When she took it away, blood spurted. She groped toward the mirror and stood in front of it. She wiped the blood off, examining her features carefully.

"You've broken my nose," she said factually. "I'll have to stop the blood and pain."

She pushed her nose back into place and waggled it to make sure. She closed her eyes and stood silent and motionless. Then she stepped back and looked at herself critically.

"It's set and partially knitted. I'll concentrate tonight and have it healed by morning."

She felt in the cabinet and attached an invisible strip firmly across the bridge. Then she came over to him.

"I wondered what you'd do. You didn't disappoint me."

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He scowled miserably at her. Her face was almost plain and the bandage, invisible or not, didn't improve her appearance any. How could he still feel that attraction to her?

"Try Emmer," he suggested tiredly. "He'll find you irresistible, and he's even more savage than I am."

"Is he?" She smiled enigmatically. "Maybe, in a biological sense. Too much, though. You're just right."

He sat down on the bed. Again there was only one way of knowing what Emmer would do—and she knew. She had no concept of love outside of the physical, to make use of her body so as to gain an advantage—what advantage?—for the children she intended to have. Outside of that, nothing mattered, and for the sake of alloying the lower with the higher, she was as cruel to herself as she was to him. And yet he wanted her.

"I do think I love you," she said. "And if love's enough, I may marry you in spite of everything. But you'll have to watch out whose children I have." She wriggled into his arms.

The racial disparity was great and she had provoked him, but it was not completely her fault. Besides . . .

Besides what? She had a beautiful body that could bear superior children—and they might be his.

He twisted away. With those thoughts, he was as bad as she was. Were they all that way, every one of them, crawling upward out of the slime toward the highest goal they could conceive of? Climbing over—no, *through*—everybody they could coerce, seduce or marry—onward and upward. He raised his hand, but it was against himself that his anger was turned.

"Careful of the nose," she said, pressing against him. "You've already broken it once."

He kissed her with sudden passion that even he knew was primitive.

THERE were no immediate results from the puppet performance and so it was repeated at intervals. After the third time, Firmon reported, coming in as Halden pored over the meager biological data he'd gathered on the unknown ancestor. Wild guesses mostly, not one real fact in all the statistics. After two hundred thousand years, there wasn't much left to work with.

Firmon slouched down. "It worked," he said. "Got three a few hours ago."

Halden looked at him; he had hoped it wouldn't work. There was satisfaction in being right, but he would rather face some-

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thing less intelligent. Wariness was one thing, the shyness and slyness of an unseen animal, but intelligence was more difficult to predict.

"Where are they?" he asked.

"Did you want them?" Firmon seemed surprised at the idea.

Halden sighed; it was his own fault. Firmon had a potentially good mind, but he hadn't been trained to use it and that counted for more than people thought. "Any animal smart enough to appreciate the value of a knife is worth study on that account. That goes double when it's a pest."

"I'll change the cremation setting," said Firmon. "Next time, we'll just stun them."

The trap setting was changed and several animals were taken. Physically, they were very much as Halden had described them to Taphetta, small four-legged creatures with fleshy antennae. Dissection revealed a fairly large brain capacity, while behavior tests indicated an intelligence somewhat below what he had assumed. Still, it was more than he wanted a pest to have, especially since it also had hands.

The biological mechanism of the hands was simple. It walked on the back of the front paws, on the fingers of which were fleshy pads. When it sat upright, as it often did, the flexibility of the wrists permitted the forepaws to be used as hands. Clumsy, but because it had a thumb, it could handle such tools as a knife.

He had made an error there. He had guessed the intelligence, but he hadn't known it could use the weapon he had put within reach. A tiny thing with an inch-long knife was not much more dangerous than the animal alone, but he didn't like the idea of it loose on the ship.

The metal knife would have to be replaced with something else. Technicians could compound a plastic that would take a keen edge for a while and deteriorate to a soft mass in a matter of weeks. Meanwhile, he had actually given the animal a dangerous weapon—the concept of a tool. There was only one way to take that away from them, by extermination. But that would have to wait.

Fortunately, the creature had a short life and a shorter breeding period. The actual replacement rate was almost neglible. In attaining intelligence, it had been short-changed in fertility, and, as a consequence, only in the specialized environment of this particular ship was it any menace at all.

They were lucky; a slightly higher fertility and the thing could threaten their existence. As it was, the ship would have to be

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deverminized before it could land on an inhabited planet.

Halden took the data to the Ribboneer pilot and, after some discussion, it was agreed that the plastic knife should supplant the metal one. It was also decided to allow a few to escape with the weapon; there had to be some incentive if the creature was to visit the trap more than a few times. Besides, with weapons there was always the chance of warfare between different groups. They might even exterminate each other.

Gradually, over a period of weeks, the damage to hydroponics subsided; the pests were under control. There was nothing to worry about unless they mutated again, which was unlikely.

KELBURN scowled at the pilot. "Where are we now?" he challenged, his face creased with suspicion.

"You have access to all the instruments, so you should know," said Taphetta. He was crouching and seemed about to spring, but he was merely breathing relaxedly through a million air tubes.

"I do know. My calculations show one star as the most probable. We should have reached it two days ago—and we're nowhere near it."

"True," admitted Taphetta. "We're heading toward what you would consider the fifth or sixth most likely star."

Kelburn caught the implication. They all did. "Then you know where it is?" he asked, suspicion vanishing.

"Not in the sense you're asking—no, I'm not sure it's what you're looking for. But there was once a great civilization there."

"You knew this and didn't tell us?"

"Why should I?" Taphetta looked at him in mild astonishment. "Before you hired me, I wouldn't tell you for obvious reasons. And afterward — well, you engaged all my skill and knowledge and I used them to bring you here by the shortest route. I didn't think it necessary to tell you until we actually arrived. Is that wrong?"

It wasn't wrong; it merely illustrated the difference in the way an alien mind worked. Sooner or later, they would have found the place, but he had saved them months.

"What's it like?" Emmer asked.

Taphetta jiggled his ribbons. "I don't know. I was passing near here and saw the planet off to one side."

"And you didn't stop?" Emmer was incredulous.

"Why should I? We're great navigators because we do so much of it. We would never get very far if we stopped to examine

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everything that looks interesting. Besides, it's not a good policy in a strange region, especially with an unarmed ship."

They wouldn't have that problem. The ship was armed well enough to keep off uncivilized marauders who had very recently reached the spaceship age, and only such people were apt to be inhospitable.

"When will we land?" asked Halden.

"In a few hours, but you can see the planet on our screens." Taphetta extended a head ribbon toward a knob and a planet came into view.

There weren't two civilizations in the Milky Way that built on such a large scale, even from the distance that they could see it. Great, distinctive cities were everywhere. There was no question as to what they had found.

"Now you'll learn why they ran away," said Taphetta.

"A new theory," Kelburn said, though it wasn't, for they *had* left. "What makes you think they were afraid?"

"No air. If your calculations are right, there must have been an extensive atmosphere a few hundred thousand years ago and now there isn't any. A planet this size doesn't lose air that fast. Therefore, it's an artificial condition. Who takes the trouble to leave a planet uninhabitable except someone who's afraid others will use it—and who else runs away?"

"They may have done it to preserve what they left," suggested Halden.

"Perhaps," said Taphetta, but it was obvious he didn't think so.

THE lack of air had one thing to recommend it — they needn't worry about their pests escaping. The disadvantage was that they had to wear spacesuits. They landed on top of a great building that was intact after thousands of years and still strong enough to support the added weight. And then—

Then there was nothing.

Buildings, an enormous number and variety of them, huge, not one of them less than five stories high, all with ramps instead of stairs. This was to be expected, considering the great size of the people who had lived there, and it followed the familiar pattern.

But there was nothing in those buildings! On this airless world, there was no decay, no rust or corrosion—*and nothing to decay or corrode.* No pictures, tools, nothing that resembled sculpture, and while there were places where machines had stood, none were there now. Here and there in inaccessible locations were featuredless blobs of metal. The implication was clear: Where

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they hadn't been able to remove a machine, they had melted in down on the spot.

The thoroughness was bewildering. It wasn't done by some enemy; he would have stood off and razed the cities. But there was no rubble and the buildings were empty. The inhabitants themselves had removed all that was worth taking along.

A whole people had packed and moved away, leaving behind only massive, echoing structures.

There was plenty to learn, but nothing to learn it from. Buildings can indicate only so much and then there must be something else—at least some of the complex artifacts of a civilization—and there was none. Outside the cities, on the plains, there were the remains of plants and animals that indicated by their condition that airlessness had come suddenly. Sam Halden, the biologist, had examined them, but he discovered no clues. The unknown ancestor was still a mystery.

And the others—Emmer, the archeologist, and Meredith, the linguist—had nothing to work on, though they searched. It was Kelburn who found the first hint. Having no specific task, now that the planet was located, he wandered around in a scout ship. On the other side of the planet, he signaled that there was a machine and that it was intact!

The crew was hurriedly recalled, the equipment brought back into the ship, and they took off for the plain where Kelburn waited.

And there was the machine, immense, like everything on the planet. It stood alone, tapering toward the sky. At the base was a door, which, when open, was big enough to permit a spaceship to enter easily—only it was closed.

Kelburn stood beside the towering entrance, a tiny figure in a spacesuit. He gazed up at it as the three came near. "All we have to do is open it," he said.

"How?" asked Meredith. She seemed to have forgotten that she disliked him. He had made a chance discovery because he had nothing to do while the others were busy, but she regarded it as further proof of his superiority.

IT was hard to watch the happiness that her face directed toward Kelburn. Halden turned away.

"Just press the button," he said.

Emmer noticed his expression. "It's such a big button," he objected. "It's going to be hard to know when we find it."

"There's an inscription of some sort," said Kelburn loftily. "This

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thing was left for a purpose. Somewhere there must be operating instructions."

"From here, it looks like a complex wave-form," a voice crinkled in their radio—Taphetta from the spaceship. "All we have to do is to find the right base in the electromagnetic spectrum and duplicate it on a beam broadcast and the door should open. You're too close to see it as clearly as I can."

PERHAPS they were too close to the big ancestor, decided Halden moodily as they went back. It had overshadowed much of their thinking, and who really knew what the ancestor was like and what had motivated him?

But the Ribboneer was right about the signal, though it took several days to locate it. And then the huge door swung open and air whistled out.

Inside was another disappointment, a bare hall with a ramp leading upward, closed off at the ceiling. They could have forced through, but they had no desire to risk using a torch to penetrate the barrier—in view of the number of precautions they'd already encountered, it was logical to assume that there were more waiting for them.

It was Emmer who found the solution. "In appearance, it resembles a spaceship. Let's assume it is, minus engines. It was never intended to fly. Listen.

"There's no air, so you can't hear," said Emmer impatiently. "But you could if there were air. Put your hands against the wall."

A distinct vibration ran through the whole structure. It hadn't been there before the door opened. Some mechanism had been triggered. The rumbling went on, came to a stop, and began again. Was it some kind of communication?

Hastily rigged machines were hauled inside the chamber to generate an air supply so that sounds would be produced for the recorders. Translating equipment was set up and focused and, after some experimentation with signals, the door was slowly closed. No one remained inside; there was no guarantee that it would be as easy to get out as it had been to get in.

They waited a day and a half while the sounds were being recorded. The delay seemed endless. The happiest of the crew was Kelburn. Biologically the highest human on the expedition, he was stimulated. He wandered aimlessly and smiled affably, patting Meredith, when he came to her, in the friendliest fashion. Startled, she smiled back and looked around wanly. Halden was behind her.

If I had not been there, thought

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Halden—and thereafter made it a point to be there.

MEREDITH was excited, but not precisely happy. The work was out of her hands until the translating equipment was retrieved. As the second highest biological type, she, too, was affected, until she pointedly went to her room and locked it from the inside.

Halden kept himself awake with anti-fatigue pills, in part because Meredith could change her mind about Kelburn, and because of that locked door.

Emmer tried to be phlegmatic and seemed to succeed. Taphetta alone was unconcerned; to him, it was an interesting and perhaps profitable discovery, but important only because of that. He would not be changed at all by whatever he learned.

Hours crawled by and at last the door opened; the air came rushing out again. The translating equipment was brought back to the ship and Meredith was left alone with it.

It was half a day before she admitted the others to the laboratory.

"The machine is still working," she said. "There seems to have been some attempt to make the message hard to decode. But the methods they used were exactly the clues that the machine needed to decipher it. My function as a linguist was to help out with the interpretation of key words and phrases. I haven't got even a little part of the message. You'll know what it is as soon as I do. After the first part, the translator didn't seem to have much trouble."

They sat down facing it—Taphetta, Kelburn, Meredith, Halden and Emmer. Meredith was midway between Kelburn and himself. Was there any significance in that, wondered Halden, or was he reading more in her behavior than was actually there?

"The translation is complete," announced the machine.

"Go ahead," Meredith ordered.

"The words will be speeded up to human tempo," said the translator. "Insofar as possible, speech mannerisms of the original will be imitated. Please remember that it is only an imitation, however."

The translator coughed, stuttered and began: "We have purposely made access to our records difficult. If you can translate this message, you'll find, at the end, instructions for reaching the rest of our culture relics. As an advanced race, you're welcome to them. We've provided a surprise for anyone else.

"For ourselves, there's nothing

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left but an orderly retreat to a place where we can expect to live in peace. That means leaving this Galaxy, but because of our life span, we're capable of it and we won't be followed."

Taphetta crinkled his ribbons in amusement. Kelburn frowned at the interruption, but no one else paid any attention.

The translator went on. "Our metabolic rate is the lowest of any creature we know of. We live several thousand revolutions of any recorded planet and our rate of increase is extremely low; under the most favorable circumstances, we can do no more than double our numbers in two hundred generations."

"This doesn't sound as if they were masters of biological science," rustled Taphetta.

HALDEN stirred uneasily. It wasn't turning out at all the way he had expected.

"At the time we left," the message continued, "we found no other intelligent race, though there were some capable of further evolution. Perhaps our scout ships long ago met your ancestors on some remote planet. We were never very numerous, and because we move and multiply so slowly, we are in danger of being swept out of existence in the foreseeable future. We prefer to leave while we can. The reason we must go developed on our own planet, deep beneath the cities, in the underworks, which we had ceased to inspect because there was no need to. This part was built to last a million generations, which is long even for us."

Emmer sat upright, annoyed at himself. "Of course! There are always sewers and I didn't think of looking there!"

"In the last several generations, we sent out four expeditions, leisurely trips because we then thought we had time to explore thoroughly. With this planet as base of operations, the successive expeditions fanned out in four directions, to cover the most representative territory."

Kelburn stiffened, mingled pride and chagrin on his face. His math had been correct, as far as he had figured it. But had there been any reason to assume that they would confine their exploration to one direction? No, they would want to cover the whole Milky Way.

Taphetta paled. Four times as many humans to contend with! He hadn't met the other three-fourths yet—and, for him, it wasn't at all a pleasant thought.

"After long preparation, we sent several ships to settle one of the nearer planets that we'd selected on the first expedition. To our dismay, we found that the plague was there—though it had-

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n't been on our first visit!"

Halden frowned. They were proving themselves less and less expert biologists. And this plague —there had to be a reason to leave, and sickness was as good as any—but unless he was mistaken, plague wasn't used in the strict semantic sense. It might be the fault of the translation.

"The colonists refused to settle; they came back at once and reported. We sent out our fastest ships, heavily armed. We didn't have the time to retrace our path completely, for we'd stopped at innumerable places. What we did was to check a few planets, the outward and return parts of all four voyages. In every place, the plague was there, too, and we knew that we were responsible.

"We did what we could. Exhausting our nuclear armament, we obliterated the nearest planets on each of the four spans of our journeys."

"I *wondered* why the route came to an end," crinkled Taphetta, but there was no comment, no answer.

"We reconstructed what had happened. For a long time, the plague had lived in our sewers, subsisting on wastes. At night, because they are tiny and move exceedingly fast, they were able to make their way into our ships and were aboard on every journey. We knew they were there, but because they were so small, it was difficult to dislodge them from their nesting places. And so we tolerated their existence."

"THEY weren't so smart," said Taphetta. "We figured out that angle long ago. True, our ship is an exception, but we haven't landed anywhere, and won't until we deverminize it."

"We didn't guess that next to the hull in outer space and consequently exposed to hard radiation," the message went on, "those tiny creatures would mutate dangerously and escape to populate the planets we landed on. They had always been loathsome little beasts that walked instead of rolling or creeping, but now they became even more vicious, spawning explosively and fighting with the same incessant violence. They had always harbored diseases which spread to us, but now they've become hothouses for still smaller parasites that also are able to infect us. Finally, we are now allergic to them, and when they are within miles of us, it is agony to roll or creep."

Taphetta looked around. "Who would have thought it? You were completely mistaken as to your origin." Kelburn was staring vacantly ahead, but didn't see a thing. Meredith was leaning against Halden; her eyes were

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closed. "The woman has finally chosen, now that she knows she was once vermin," clicked the Ribboneer. "But there are tears in her eyes."

"The intelligence of the beast has advanced slightly, though there isn't much difference between the highest and the lowest — and we've checked both ends of all four journeys. But before, it was relatively calm and orderly. Now it is malignantly insane."

Taphetta rattled his ribbons. "Turn it off. You don't have to listen to this. We all are of some origin or other and it wasn't necessarily pretty. This being was a slug of some kind—and are you now what it describes? Perhaps mentally a little, out of pride, but the pride was false."

"We can't demolish all the planets we unthinkingly let it loose on; there are too many and it lives too fast. The stars drift and we would lose some, and before we could eliminate the last one, it would develop space travel—it has little intelligence, but it could get that far—and it would escape ahead of us. We know an impossible task when we see it. And so we're leaving, first making sure that this animal will never make use of the products of our civilization. It may reach this planet, but it will not be able to untangle our code—it's too stupid. You who will have to face it, please forgive us. It's the only thing that we're ashamed of."

"Don't listen," said the Ribboneer and, bending his broad, thin body, he sprang to the translator, shook it and banged with his ribbons until the machine was silent. "You don't have to tell anyone," crackled Taphetta. "Don't worry about me— I won't repeat it." He looked around at the faces. "But I can see that you will report to everyone exactly what you found. That pride you've developed — you'll need it."

Taphetta sat on top of the machine, looking like nothing so much as a huge fancy bow on a gift-wrapped package.

They noted the resemblance vaguely. But each of them knew that, as a member of the most numerous race in the Milky Way, no longer feared for their mysterious qualities — despised, instead — wherever they went, there would never be any gifts for them—for any man.

—F. L. WALLACE

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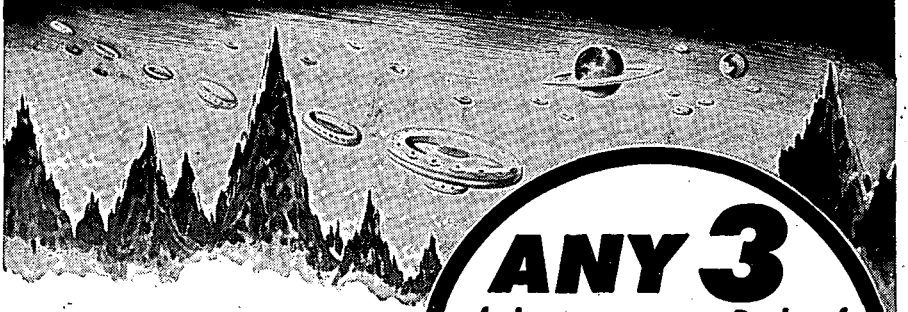

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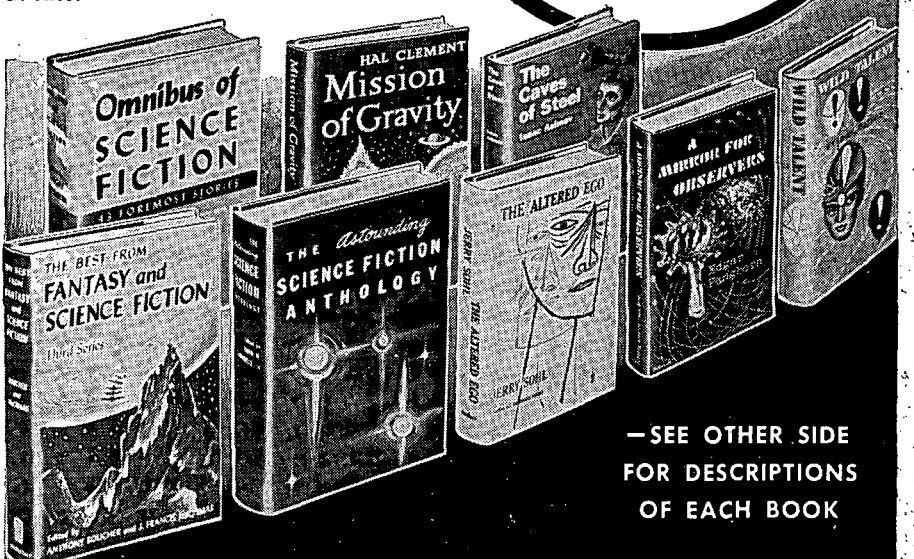

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